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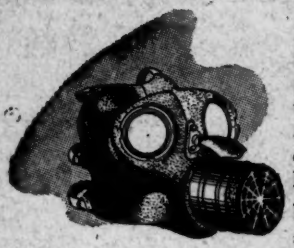

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 13 1943

EPIDEMIC NAUSEA AND VOMITING

BY

W. H. BRADLEY, D.M.

A Medical Officer to the Ministry of Health

In July and December, 1935, two episodes in a widespread outbreak of nausea and vomiting in Denmark were observed by Rischel (1935) and Henningsen (1936). In March of the following year Miller and Raven (1936) recognized the same condition in a boarding-school for girls in Thanet; and in October, 1938, an outbreak occurred both in a girls' school and amongst the general population of Hayling Island (Gray, 1939). From conversations with colleagues, particularly medical officers to the public schools, it is probable that outbreaks of a similar nature had occurred in England before 1935. During recent months this comparatively trivial disorder has become much more common.*

Although the disease is of minor significance clinically and economically, it may give rise to considerable administrative uncertainty. Those who are unfamiliar with the clinical and epidemiological picture may be led to suspect food-poisoning or dysentery and be stampeded into ineffectual and wasteful action. It is important that at the present time "epidemic nausea" should be considered in the differential diagnosis of all outbreaks of gastro-enteritis, and the following incomplete account of an outbreak at present under investigation may serve to emphasize some of the differentiating points.

On Oct. 27, 1942, the medical officer of health for an urban district with a population of about 10,000 was informed by the medical officer to a girls' public boarding and day school that a number of children had been attacked almost simultaneously with vomiting and diarrhoea. Both boarding and day girls were involved. The boarders constituted three separate feeding groups, and the only aliments obviously common to all the affected children were school milk and the mains water supplied to the whole town. Since inquiry of the practitioners in the town brought to light no evidence of an explosive outbreak of dramatic proportions in the rest of the town strong suspicion fell on the school milk, originating in two accredited farms producing together about 100 gallons a day. Half of this milk was bottled and distributed to certain schools unpasteurized in 1/3-pint bottles by one of the three retail dairies in the town; the remainder was sold in larger bottles or in cans to private householders. Investigation was concentrated in this direction, the school milk being withdrawn and the retailer requested to provide the Health Department with a list of his customers in order that they might be circulated and advised to boil their milk. The retailer refused this request.

On Oct. 28 it was learnt that 120 of 400 girls in the school had been ill, but that other schools consuming the milk were not involved. Milk examined on this day was free from pathogenic organisms. However, on the 29th an explosive outbreak occurred in the boys' public boarding and day school in the town, and the Ministry of Health was asked to advise as to further action. The following account records observations made on Oct. 30 and Nov. 3.

Incidence and Age

It is unusual for patients affected with this disorder to call their doctors, since most of them begin to feel better within a few hours. The disease is not notifiable, and without a house-to-house survey no estimate of incidence among the general population can be made. Reliable information concerning attack rates was, however, obtained from a few selected samples, that concerning the girls' school being most complete. The school buildings in this instance are at present occupied by the public school proper and by an evacuated school party, the school proper occupying them in the morning and the evacuated party during the afternoon. The school proper maintains three boarding-houses, but the majority of pupils live in their homes. The evacuated party is billeted with private householders near the school, except for one small group occupying a hostel. There are thus four residential communities, each representing a separate feeding group but occupying the same building for school purposes. There is little physical contact between the school proper and the evacuated party except at midday, when members of both schools may meet in cloakrooms and corridors. The schools are independently staffed. The known attack rates during the first week of the outbreak are tabulated below:

Table showing Attack Rates during First Week of Outbreak

	Boarders			Day Girls			Total		
	Roll	Incidence	Attack Rate %	Roll	Incidence	Attack Rate %	Roll	Incidence	Attack Rate %
Girls' public school ..	85	58	68	324	123	38	409	181	44
Evacuated school ..	21	8	38	181	27	15	202	35	17

The attack rate for the general population is unlikely to have exceeded that among the day girls in the evacuated school, say 15%, although in a few households all the members were affected.

While the incidence would at first sight appear to be highest in communities of young people, in one household the ages of the persons attacked were 50, 54, 56, and 81 years, and the attack rate among the adult staff of the girls' public school was high.

Clinical Picture

Vomiting.—This was the most characteristic sign, and in young people it tended to be projectile and of great urgency. The first vomit usually contained food, but second and third vomits were of copious clear fluid only faintly bile-stained. A child who sat down to lunch feeling well "suddenly turned green" and had vomited before she could leave the room. A boy vomited on to his plate during a meal. This precipitate emesis was particularly distressing when it occurred during the night: sleeping children woke suddenly and vomited before they could get out of bed. On the other hand, projectile vomiting was by no means invariable, and a large proportion of the cases, particularly adults, did not vomit, or vomited only after a prolonged period of nausea.

Nausea.—Usually nausea was present with the vomiting, but more characteristically preceded it for a period of hours or even days, and in several cases persisted unaccompanied by emesis. Nausea, which some patients described as being indistinguishable from the sensation of sea-sickness, was associated with the feeling of fullness or of "a lump" in the epigastric angle. In a case in which it had persisted for a week the epigastrium became tender to touch.

* Received for publication Dec. 8, 1942.

Vertigo.—Nausea often included a sense of instability and dizziness. A desire to fall over or faint was present in some cases and patients disliked sitting up for this reason, but in few instances only did dizziness amount to true vertigo.

Aches.—Some degree of frontal headache was almost invariably present, and in some cases lasted for three to four days. Occipital headache also occurred. Headache was not persistent, but tended to come and go in spasms. Abdominal aching occurred mainly in the epigastric angle, but sometimes involved the umbilical region; in patients with diarrhoea it sometimes occurred below the umbilicus. *Pain* from colic was conspicuously absent.

Diarrhoea.—This symptom was of minor importance, and in those cases in which it occurred the stools were watery and the bowel actions hurried but not greatly increased in frequency. Mucus was not present, and in most cases the stools were normal in appearance. In one case red blood was passed, but the stool was not characteristic of dysentery.

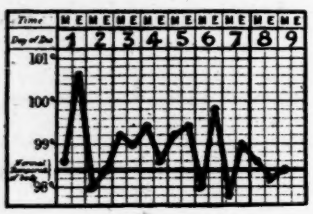
Frequency of Symptoms.—The relative frequency of the symptoms in one girls' boarding-house was as follows:

Population at risk		35
Vomiting without diarrhoea ..	11	
Vomiting with diarrhoea	7	
Diarrhoea only	1	
Nausea only	7	
Total cases	26	

Physical Signs

Central Nervous System.—When a group of these cases were seen together the impression that the central nervous system was primarily involved was a strong one, particularly when signs of gastritis or enteritis were absent. There was no evidence of dehydration, severe intoxication, or collapse. Routine examination of the central nervous system failed to detect any recognized signs apart from a suspicion of mydriasis with sluggish ocular reflexes. Widely dilated pupils were observed in some children on the first and second days of the disorder. Although the school children remained limp and tired for a few days they returned to classwork when nausea and vomiting had ceased, and their teachers did not notice any lack of co-ordination, precision, or concentration following the attack.

Temperature and Pulse.—The temperature rhythm was disturbed in almost every case in which observations were made, but rises in temperature above 100° were not numerous, although a very few cases showed rises to 102°. Pyrexia was



Temperature chart of one of the more persistent cases.

rarely of more than 24 hours' duration. The pulse was disturbed in minor degree only. Bradycardia, which had been observed by Gray, was not characteristic in the present series. The temperature chart of one of the more persistent cases is here reproduced.

Alimentary System.—The appearances in the mouth were uniform and almost constant throughout the first two days. The tongue was moist and lightly covered with a white fur through which projected hyperaemic papillae. These appearances were no less striking, and could easily be confused with those seen in the first day or two of streptococcal throat infections, but the papillae were scattered evenly over the tongue surface and not confined to the tongue margins. The fauces and posterior pharyngeal wall were moderately injected in some cases, but there was no exudate on the tonsils. So suggestive were the tongue and throat appearances that swabs were taken from eight cases of nausea. One of these cultures yielded *Str. pyogenes,* Lancefield group C; the remainder gave a normal throat flora only. *Epistaxis* occurred in two children.

Examination of the abdomen did not suggest any dilatation of the stomach or increased peristalsis, and in most cases the abdominal wall moved freely and the patient was not disturbed by palpation. Sometimes the sensation of nausea was increased by epigastric pressure, but tenderness was not elicited except in three cases in which umbilical aching radiated into the right iliac fossa and tenderness over the appendix gave rise to a suspicion of appendicular involvement. These three patients made dramatic recoveries without operation.

A number of cases relapsed after an interval of about one week. Relapses were also reported by Rischel (1935) and Gray (1939).

Epidemiology

Family Outbreaks

By asking a few individual patients whether their friends or acquaintances had suffered from a similar condition a number of family outbreaks were brought to light. Chronologically the earliest involvement detected preceded the present events by five weeks, and in this instance four of six members of a household became characteristically ill almost simultaneously and had attributed their discomfort to the mutton consumed one to two and a half hours previously. In another household all of six persons were involved. First the cook and the master became ill. Two days later, on Oct. 8, 1942, while at an evening choral practice, M., a schoolgirl evacuee, was attacked with "vertigo" and giddiness, and thought she was going to faint. She left the class, and half an hour later vomited. She then slept normally for a few hours before awaking suddenly and vomiting precipitately, and about six hours later she passed one watery stool. During the next two days this evacuee's hostess and her daughter became ill, and on Oct. 10 the last of the six—another evacuee, J.—fell sick, complained of giddiness, and thought she would faint, but had neither vomiting nor diarrhoea. The two evacuees mentioned were members of the sixth form of the evacuated school party, which remained well until three weeks afterwards and which will be discussed later.

H., an elementary-school teacher aged 50, lived with her father aged 81, her sister aged 51, and a guest aged 56. On Oct. 20, 1942, the guest and the sister were ill with nausea and vomiting. On Oct. 27 the teacher felt cold and chilly, and complained of her head "swimming" and felt seasick. Next day she was "very ill" in the afternoon. "Vertigo" continued for three or four days, and a week after the onset she still had nausea and epigastric discomfort and tenderness, and wished she could be sick, but neither vomiting nor diarrhoea occurred. On the 28th her sister suddenly relapsed and vomited violently for two hours, but had negligible nausea and no diarrhoea. On the evening of the 29th her father vomited precipitately and complained of "vertigo." Nausea persisted throughout the next day, but there was no diarrhoea. H. continued to teach her class in the elementary school, but no cases had appeared amongst her pupils within seven days of the cessation of her symptoms.

H.'s nearest neighbour, who lived in an isolated house with her husband and two daughters, was breaking her fast with a cup of tea at 7 a.m. on Oct. 28, 1942, when she was seized with intense nausea and passed an urgent stool. During the morning nausea became almost intolerable and she passed more urgent stools, but it was seven hours before she vomited. Giddiness persisted throughout the 29th, and she was still feeling weak on Nov. 2. Up to this date the condition had not been transmitted to the three other members of her household. This woman had neither left her cottage nor received visitors since Oct. 24.

Community Outbreaks

The family histories described served to show that the disease was present in the town before cases appeared in the schools and that there was considerable variation in the pattern of the outbreaks in households. Similar variations were found in community outbreaks.

Girls' Public School

Junior Boarding-house (Girls).—Population at risk, 20; children known to have been attacked, 12. On Oct. 25, 1942, one child reported diarrhoea. At 5 p.m. on the 27th two young girls vomited and had passed hurried stools before bedtime. Between 5 and 8 p.m. five other girls vomited, but

had no diarrhoea; and between 8 p.m. and midnight five more children vomited before they could get out of their beds. Next morning another child developed diarrhoea without vomiting. No further cases were detected during the following week.

Senior Boarding-house (Girls).—Population at risk, 35; children known to have been attacked, 26. A child was sent to bed with diarrhoea and a slight temperature on Oct. 6, 1942. On the 12th another child had precipitate vomiting during the night, and some nausea and headache persisted through next day. Fifteen days later, between 8.30 and 9 p.m. on Oct. 27, some of the younger girls began to vomit, and by midnight 11 of the 35 children had vomited and 5 others were complaining of nausea. Further cases appeared particularly amongst the older girls on the morning of Oct. 28.

Another Boarding-house (Girls).—Population at risk, 30; children known to have been attacked, 19. There is no record of alimentary upset in this series since the beginning of term until Oct. 27, when between 8 p.m. of that day and 8.30 a.m. of the 28th 14 girls vomited. Cases continued to occur throughout the latter day, and by the 29th 17 children had vomited and 2 had had nausea only. Two of the staff became ill 24 hours after the first appearance of the disease in the children.

Evacuated Day School Hostel.—Population at risk, 21; children known to have been attacked, 8. The ages of these girls range from 7 to 15 years, but the outbreak was confined to 8 of the 10 juniors, the seniors and staff escaping. The first case occurred at 1.40 p.m. on Oct. 27, 1942, when a child vomited precipitately at lunchtime before she had eaten any of the meal. She improved during the next day, but vomited again on the following night, and subsequently passed blood in her stool for three days. The second case in this hostel appeared at 7.30 p.m. on Oct. 27. At 8.45 p.m., soon after the children had gone to bed, others were taken ill, and between 2.30 a.m. and 5 a.m. of the 28th three further cases vomited. None of these children developed diarrhoea.

Evacuated Day School; Billeted Children.—Population at risk, 181; children attacked, 27. Although only 27 of these children were absent from school with this condition it is probable that some nauseated children continued to attend classes. Furthermore, new cases were still appearing on Nov. 3, when these notes were made, and the final score is unknown. Some billeted children in the junior classes were attacked at the same time as their fellow pupils living in the hostel—that is, on Oct. 27 and 28. The timing of the attack on sixth-form girls was entirely different. All these girls lived in billets or with their families. The cases M. and J., mentioned under family outbreaks, were ill on Oct. 8 and 10 respectively. Of the remaining 18 girls in this form nine became ill, three without vomiting—on Oct. 28 (one case), Oct. 30 (two cases), Oct. 31 (one case), Nov. 2 (one case), Nov. 3 (two cases), Nov. 4 (one case), Nov. 11 (one case) respectively—and nine had remained well.

Boys' Public School

The majority of pupils attending this school are day boys, many of whom have sisters in the girls' public school. The two public schools draw their day pupils from rather exclusive social and economic levels, representing virtually the same home environments. It is known that day boys were already affected on Oct. 26, and the attack rate appeared to be of the same magnitude as among the day girls. The three boarding-houses suffered more explosive outbreaks, two of which are summarized below.

"O" House.—Population at risk, 36 junior boys; number known to have been attacked, 15. The house master, his wife, his daughter, his staff, and the 36 boys constitute one feeding group. The 8-year-old daughter attends the girls' public school and is a class-mate with girls in the junior boarding-house there. At 5.30 p.m. on Oct. 27, after returning from the girls' school to "O" House, she vomited, and continued to do so throughout the night. She had no diarrhoea. Forty-eight hours later her mother became nauseated and, after five hours' increasing discomfort, vomited at 10 p.m. on the 29th. The same evening 10 of the boys were attacked, most of them between 4 and 7 p.m., and the matron also developed nausea, which persisted for four days before she vomited. At first sight this sequence suggests that the house master's daughter was the primary case in this community. Further inquiry brought to light a boy in the house with diarrhoea starting on Oct. 23, one with nausea on the 25th, and two further cases of vomiting on the 28th. It is therefore not improbable that, if the spread of this disease depends on contact, there were at least two primary sources of infection in this house.

St. J. House.—Population at risk, 42; number attacked, 22. This house constitutes a separate feeding group and occupies a neighbouring building, 100 yards away from "O" House. The recorded incidence of nausea and vomiting was as follows: Oct. 28, 10 cases; Oct. 29, 8; Oct. 30, 2; Oct. 31, 0; Nov. 1, 1; Nov. 5, 1. The majority of the 10 boys attacked on Oct. 28 were unable to get up on that morning. The peak of the wave in this series was therefore at least 33 hours before the peak in "O" House.

Bacteriology.—Three specimens of milk from the suspected source and twelve specimens of vomit and faeces were examined at an Emergency Public Health Laboratory, all with negative findings.

Discussion

It is difficult to avoid the impression that the explosive outbreak reported to the medical officer of health was in fact the summit of a wave of disease which had been mounting not only in the town but also in some of the communities for some days. This impression is strengthened by the observation that the peaks of the several parts of what at first sight appear to be one explosion do not coincide but range over a period of days. This pattern is unlikely to be produced by poisoning from food simultaneously consumed, but food-poisoning cannot be dismissed on these grounds alone. Each of the several groups of cases discussed was independently fed on food obtained from different sources and prepared separately, and the pattern may have arisen if a common aliment had been used on one day in one house and on another day in another house. Investigation of this possibility was conducted on the assumption that if the symptoms were due to ingestion of a toxic factor in food the incubation period was in all probability a matter of a few hours rather than days. A peculiarity of the outbreak was that one could not identify any single meal as having been consumed at a reasonably constant interval before the onset of symptoms in the several groups: considering only those cases occurring on the day of maximum incidence, the last common meal was breakfast in one house, dinner in another, tea in another, and supper in a fourth. These variations do not necessarily argue against the disorder being *ex alimentatione*; they merely suggest that if the cause of the trouble was ingestion of a common aliment the incubation period was variable, usually exceeded 12 hours, and may have been of several days' duration. Other considerations suggest that if the toxic factor was food-borne it withstood cooking.

In the absence of more exact knowledge as to the nature of the toxic factor or of the incubation period, and without minutely detailed food lists and menus covering several days, such widely distributed non-perishable items as dried eggs or dried milk, chocolate, etc., could not be excluded. Liquid milk could, however, be excluded with some degree of certainty on the grounds that (1) some of the patients becoming ill during the peaks of the wave did not take milk from any source and others did not take school milk, which was the only source suspected; (2) the same milk, bottled and delivered at the same time and under identical conditions and consumed at approximately the same time, did not give rise to disease in some of the schools supplied; (3) only by the remotest chance could contaminated milk have been distributed so as to give rise to the disease in one group on one day and in other groups on other days. Furthermore, the milk was withdrawn on the morning of Oct. 28, but this withdrawal did not prevent the appearance of explosions in some communities subsequent to this date. It is interesting to note that the girls' school milk was all delivered at the school at the same time, but was consumed at different times of the day by the different groups of children affected (junior girls' public school, 10.30 a.m.; senior girls' public school, 11.45 a.m.; evacuated girls' school, 4.30 p.m.), and there is no constant relation between these times and the times of onset of illness in the several groups. All school milk was consumed on the day of delivery.

Conclusion

Previous writers have concluded that epidemic nausea and vomiting is an upper respiratory infection with an incubation period of from two to seven days, probably due to an unknown virus. The present outbreak strengthened the impression that the disease is communicable and that the portal of entry is the upper respiratory passages. The incubation period was probably within the range of from two to seven days, but could not be determined accurately. Infection *ex alimentatione* immediately preceding the attack was excluded with some confidence by the circumstances. An alimentary vehicle consumed a few days before the appearance of symptoms could not be excluded, but as a cause was thought to be improbable.

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TWO CASES OF RUBELLA MENINGO-ENCEPHALITIS

BY

R. I. C. BRADFORD, M.B., B.Ch.

Surg. Lieut., R.N.V.R.

The occurrence of meningo-encephalitis in association with rubella is exceedingly rare. Taylor (1937), in his account of meningo-encephalitis following German measles, states that only 12 other cases had been reported up to that date.

Case I

A Naval Air Arm observer aged 19 was admitted to the zymotic ward on June 2, 1942, with the diagnosis of meningitis. His communication sheet stated that on May 29 he reported to the sick bay at his own depot with a typical rubelliform rash, cervical adenitis, and slight general malaise. There had been an epidemic of rubella in this establishment immediately prior to this date. He was diagnosed and treated accordingly. On June 1 he complained of severe frontal headache. His temperature was normal. The duty medical officer noticed that the right pupil was larger than the left. No other abnormal signs were reported. Next day the headache was worse; temperature 100°; pulse 80; tongue heavily furred; severe pain on flexion of neck, and weakly positive Kernig's sign present both sides; pupils equal and reacting sluggishly to light.

June 2.—On admission he lay curled up in bed, face towards the wall and away from the light. He was mildly annoyed at being disturbed for examination, and somewhat drowsy, but withal intelligent and co-operative. Some exposure phobia was evident, as is commonly found in meningitic cases. He was obviously feeling ill: face pale, tongue furred, and remains of what might have been a rubelliform rash over his trunk, most pronounced on the back. Temperature 100.8°. Glands in posterior angle of neck enlarged and tender. No Koplik's spots seen on buccal mucous membrane. Pupils equal in size; reactions brisk. All reflexes normal. Babinski's sign absent. Kernig's sign negative. Marked nuchal rigidity with pain on flexion. Heart, lungs, and abdomen normal. Lumbar puncture was performed and 16 c.cm. of clear fluid withdrawn under increased pressure (Table I). Sulphapyridine was administered as a routine measure in view of the possibility of meningococcal meningitis, several cases of which had recently been in the ward.

June 3.—Condition much the same. Temperature 100°. Kernig's sign positive; marked neck rigidity. Knee-jerks rather brisk. Doubtful plantar response.

June 5.—Neck rigidity less severe. Flexor plantar response. Knee-jerks normal. Kernig's sign negative. Pyrexial still. Lumbar puncture repeated: 20 c.cm. of clear yellow fluid withdrawn under increased pressure.

June 6.—Temperature 99°. Condition improved. Complained of slight cough. A few crepitations heard at left base.

June 8.—Temperature rising. No clinical change.

June 12.—A general marked rubelliform rash again present over trunk and proximal part of limbs, pink and papular in nature, typical of rubella. A few spots also present on face. No Koplik's spots seen. Tender cervical adenitis present. Temperature 100°. C.N.S. normal. Lumbar puncture performed: 15 c.cm. of clear fluid obtained, not under pressure.

June 14.—Rash completely gone. No skin staining left. No symptoms beyond slight headache. C.N.S. normal.

The patient made an uneventful recovery from this date and went through his period of convalescence without the appearance of sequelae.

TABLE I.—*Results of C.S.F. Examination in Case I*

Date	Protein (mg./100 c.cm.)	Cells per c.mm.	Lymphocytes	Polymorphs	Sugar (mg./100 c.cm.)	Chlorides (mg./100 c.cm.)	Organisms	Red blood cells	Fibrin	Lange Gold Curve
2/6/42	160 Glob.+	3	—	—	—	730	Nil T.B. not found	—	—	4444322110
5/6/42	100 Glob.+	20	94%	6%	60	720	Nil	+	+	3444553100
10/6/42	50	50	96%	4%	30·3	730	Nil	—	—	0012332210
					Wassermann reaction negative					

In view of the typical nature of the rash in this case, together with the fact of the rubella epidemic in progress, the diagnosis of rubella must be considered as confirmed. The occurrence of a second rubelliform rash is difficult to explain unless it be considered as a relapse, which, although rare in rubella, is not unknown. The C.S.F. findings are interesting in view of the marked increase of protein, especially with regard to its dissociation from the cell count. A similar dissociation is found in cerebral arteriosclerosis, some cranial tumours, and spinal tumours. This point in common with arteriosclerosis is worthy of comment in so far as Taylor (1937), describing a case of encephalomyelitis which came to the post-mortem table, mentions the extreme degree of arterial degenerative proliferation found in the brain together with perivascular cuffing of small lymphocytes with occasional large ones. The red blood cells and the minute fibrin clot found in the second specimen of C.S.F. were probably an artefact due to the previous lumbar puncture.

Another case of rubella which portrayed the signs and symptoms of encephalitis is included in the records of this hospital for the year 1940.

Case II

Feb. 5, 1940.—During a large epidemic of rubella a rating aged 18 was admitted with the typical rash, cervical adenitis, and sore throat. No Koplik's spots were seen, and there were few signs of respiratory catarrh or conjunctivitis. We had 200 cases of rubella in the hospital at this time.

Feb. 10.—The patient, who had been progressing normally apart from a mild degree of pharyngitis, vomited a greenish fluid several times and had a small epistaxis. He complained of headache. Temperature rose to 101.2°. He was tender in the right hypochondrium and was thought to have gastritis. A slight cough was present.

Feb. 12.—Patient vomited again. He was found to be extremely listless, drowsy, and emotionally unstable. Was easily tired and unable to concentrate on any one thing except for a very short time. Articulation was poor, with a tendency to mumble. No physical abnormality was detected. Blood urea 36.5 mg., sugar 104.6 mg. per 100 c.cm.

Feb. 14.—Still vomiting. Very ataxic. Could barely stand even with feet well apart. Marked emotional instability present. Right pupil larger than left: reactions normal. Optic disks showed faint blurring of edges. Other cranial nerves intact. Investigation of the C.N.S. showed impaired muscle sense when tested by movements of feet or fingers. Finger–nose test especially bad, the finger alighting well up the forehead. Kernig's sign negative. Remainder of C.N.S. normal. No neck rigidity. The *status quo* was preserved during the next 9 days, with slight improvement.

Feb. 23.—Lumbar puncture performed (Table II). Now apyrexial, and remained so throughout rest of illness and convalescence.

Feb. 25.—Considerable vomiting, projectile in nature, without nausea and preceded by bouts of severe headache. C.N.S. completely normal.

Feb. 27.—Lumbar puncture performed and 8 c.cm. of clear fluid withdrawn, not under pressure.

From this date the patient's condition improved rapidly; the vomiting ceased, headache disappeared, and the central nervous signs remained normal. A further lumbar puncture was performed on March 12, 1940. There were no abnormal characteristics about this fluid, and, since the patient was by now completely recovered, he was sent to a convalescent home and thence on sick leave. There were no noticeable sequelae.

TABLE II.—*C.S.F. Results in Case II*

Date	Protein (mg./100 c.cm.)	Cells per c.mm.	Lymphocytes	Sugar (mg./100 c.cm.)	Chlorides (mg./100 c.cm.	Organisms	Lange Gold Curve
23/2/40	70	20	++	40	710	Nil T.B. not found	0022221000
27/2/40	40	8	++	—	—	Nil	0011000000

Wassermann reaction negative

The diagnosis of rubella, as in Case I, does not seem open to reasonable doubt. Meningism was not present at any stage, and the central nervous signs and symptoms were those of an encephalitis with resulting increase in cerebral pressure.

Commentary

Complications of any variety during an attack of rubella are very rare, and involvement of the central nervous system is the least common of these. The cases of this type so far reported include manifestations of meningitis, encephalomyelitis, polyneuritis, and ascending paralysis of the Landry variety. At least two of these cases were fatal.

The necropsy on the 18-year-old girl described by Taylor (1937) revealed the typical picture of an acute to subacute encephalomyelitis with demyelination most pronounced in the perivascular regions, as may be found in encephalitis associated with the exanthemata, such as measles, small-pox, and mumps. According to Russell Brain (1940) the cause of this type of encephalitis is still unknown. The former view that it is due to the virus of the exanthem in question is in disfavour owing to failure to reproduce experimentally the pathological picture by means of the virus. An alternative opinion, that the condition is brought about by another virus common to all patients and normally latent but activated by the exanthem, would explain the similarity of pathological features in all cases and also the fact that encephalitis of this nature may arise with apparent spontaneity unpreceded by an infection. No such virus has, however, so far been demonstrated. Finley (1937) suggests that the encephalitis may be an allergic reaction in the brain following the general eruption. This is in accordance with the finding of Rivers and Schwentker (1935) that a demyelinating encephalomyelitis could be produced in monkeys by repeated injection of brain material.

I am grateful to Surg. Cmdr. Mussen, R.N., for bringing Case II to my notice, and for his advice in the compilation of this account; also to Surg. Rear-Admiral Bradbury, R.N., and Surg. Capt. Parker, R.N., for permission to publish it.

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In a discussion on bacteriaemic staphylococcal infection, Champ Lyons (*Surg. Gynec. Obstet.*, 1942, **74**, 41) observes that the importance of thrombophlebitis in the production of metastatic abscesses was recognized by John Hunter. He quotes Topley to the effect that in a bacteriaemic staphylococcal infection "the cocci are carried from the original focus of infection in detached fragments of an infected thrombus." Lyons presents evidence in support of this view, and believes that pulmonary thrombophlebitis as a factor in the perpetuation of a staphylococcal bacteriaemia may be likened to a left-sided endocarditis.

PLANNING FOR THE TREATMENT OF HEAD INJURIES*

BY

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The war has given impetus to the study of head injuries, and information is now available which should assist in the formulation of plans for post-war medical services.

I. Plans should be based on a Survey of Unselected Material

Before the war, with few notable exceptions, specialists responsible for teaching on head injuries saw an undue proportion of the severe cases and those in which compensation or litigation was pending. Although as long ago as 1932 Ritchie Russell had shown that the majority of patients with head injury made a satisfactory return to work within six months, treatment and prognosis of head injuries continued for the most part to be governed by pathological doctrines which implied, or were thought to imply, that bruising of the brain was an almost invariable accompaniment of even minor concussion, and that the bruising took a long time to resolve and might continue to produce symptoms for a number of years. Patients are still encountered who have been confined to bed for weeks or months after relatively trivial head injuries, and have been warned that because of brain damage they cannot expect to resume full normal activity for periods of months or a year.

There is still considerable controversy about the pathological processes in head injury, but in the special centres established since the outbreak of war comprehensive survey of head injuries is accumulating an impressive number of facts which show that the picture of the late results of blunt head injury† has been painted blacker than it really is. Thus, in a military hospital for head injuries, in a series of 237 acute cases of head injury in the fighting Services (not including fatal cases, but otherwise unselected), Symonds and Ritchie Russell (1943) found that 80% were successfully returned to duty, the majority within three months. Among civilians Eric Guttmann (1943) obtained similar results in a consecutive series of 158 wage-earners admitted to the Radcliffe Infirmary, Oxford, suffering from head injury: 25% returned to work within three weeks, 50% in between three and nine weeks, and only 8 patients had not returned to work within six months. In Guttmann's series there had been an initial hospital mortality of 4%.

These are the results in unselected hospital material from a mixed urban and rural area, at a time of "comparatively standardized and favourable social conditions, when everybody has the choice of well-paid jobs and most employers are ready to facilitate gradual return to work." In civilian head injuries, permanently incapacitating brain damage appears to be an uncommon event—among Guttmann's 158 wage-earners there were only 2 patients so affected—and early return to work may be expected in the majority. The results suggest the need for revision of teaching on the subject of head injuries. They also suggest that where problems of compensation arise settlement should be made at an earlier date than has been customary in the past.

II. Where should Head Injury Patients be Treated?

Accident cases are usually taken to the nearest hospital, and it would be difficult to devise machinery for primary segregation of head cases in special centres. Guttmann found that 30% of his head-injury patients had major injuries in other parts of the body, such as fractures of long bones, and this fact favours the current practice of sending all accidents to the general hospital. There is little doubt, however, that, in the general hospital, accident cases should be segregated in an accident service, as has been done at Birmingham and Oxford, under the care of surgeons who particularize in accident work and who have special facilities for resuscitation.

Since the majority of head injuries are evidently mild and, when treated correctly, uncomplicated, it would be reasonable

* Based on a paper read to a meeting of consultants of the combined Services at Reading, Nov. 28, 1942.

† Gunshot wounds of the head are not considered in this paper. They constitute a separate problem.

to expect that the *trained* accident surgeon should himself be able to see the majority of his head-injury cases through to the stage of return to full work, with the assistance of the general practitioner, the industrial doctor, and the social worker. The services of the nearest neurosurgeon would be sought in head injuries which were complicated by severe damage to the brain or skull and in those cases which were not recovering according to expectation. When fit to be moved such cases should be transferred to head-injury centres.

III. The Need for Statistics

Planning for head-injury centres (and for accident services) after the war would be assisted by more precise knowledge of the number, type, and distribution of accidents than seems to be available at present.

In Britain, road accidents of all types amount to about 230,000 a year, industrial accidents (exclusive of mines and certain other industries) to about 270,000 a year, and mining accidents to about 133,000 a year (Safety in Mines Research Board, 1937). I have not found any information about the number of accidents which occur at home and at play, but in the U.S.A. in 1940 the deaths from accidents in the home almost equalled those from motor vehicles (National Safety Council, Chicago, 1941).

These figures do not discriminate between the patient requiring in-patient hospital treatment and the man who is so mildly injured that he can be treated at home and is able to return to work within a few days. In 1935, of the 1,300,000 accident cases in this country, only 136,000 were treated as in-patients (Report on Rehabilitation, 1939). The percentage of head inuries may vary from one type of accident to another. Of accident cases admitted to the Radcliffe Infirmary—mainly road accidents—30% showed head injury. On the other hand, in occupational accidents in the U.S.A., assessed from compensation data, head injuries amounted to no more than 7%. in British mines in 1935 the proportion of head injuries was also 7% (Safety in Mines Research Board, 1937).

Clearly, more exact information is wanted, particularly in regard to patients requiring in-patient hospital treatment. It is reasonably certain, however, that there are many more head injuries each year than could be treated by the neurosurgeons. Their function should be, along with neurologists and psychiatrists, to treat the cases presenting special difficulties.

IV. Rehabilitation

The accident surgeon, or someone on his staff, should have a clear understanding of the problems of treatment and rehabilitation of head-injury patients. Operation is often required for the repair of scalp wounds, but for other purposes only in a limited number of cases—according to Rowbotham (1942) in about 5%. Neglect of a meticulous surgical technique in closing the scalp may wreck the result in otherwise favourable cases, as Botterell and Jefferson (1942) have pointed out. In the cases of Symonds and Russell (1943) and Eric Guttmann (1943) the methods of treatment were simple and did not include any dehydration. The patient was allowed to get up gradually soon after he had recovered consciousness. He was examined thoroughly to see that there was no residual brain damage, and his personality was assessed by a study of his past, social, and family histories. An important part of the treatment is reassurance of the patient and his relatives. In the cases from the fighting Services, occupational therapy and graduated physical training were employed; these patients had to be rendered fit for full duty in the Army or R.A.F. In the civilian cases, on the other hand, no such measures were used: the patient was discharged to his home soon after he was able to get about, with instructions to report at the out-patient department on a date a little before the time at which it was estimated he might be fit for work again. The patient was advised to take graduated exercise of his own choice, a letter was sent to his family doctor, and he was seen by appointment in the out-patient department from time to time, by those who had looked after him in the acute stage, until he was once more in his stride at work. Difficulties of a psychological or social character which had been elicited by the preliminary study of personality or at the subsequent out-patient visits were dealt with by explanation and reassurance, and by visits of the social worker (who attended all out-patient sessions) to the home or to the man's employers.

Guttmann's work suggests that in the majority of head injuries in civilians the main factors in rehabilitation are the doctor's knowledge of the patient and of his social conditions, as well as of his injury, and a sustained interest in him until he is once more back at work. It really amounts to psychological management, but I have avoided using the word "psychological" lest it be thought that this process of rehabilitation requires as a routine the services of the psychological specialist or the use of elaborate psychological techniques. Handling of most patients along common-sense psychological lines should not be beyond the powers of the competent accident surgeon, who starts, moreover, with the initial advantage of having helped the patient through the acute stage of his illness. In limb injuries, though all the emphasis is placed on physical re-education (Report of the Interdepartmental Committee on Rehabilitation, 1943), I suspect that the psychological side is probably just as important as it is after head injuries, and that in protracted cases return to work is as often delayed by psychological factors as by the physical condition of the limb.*

If Guttmann's work is confirmed there is clearly no need for institutional rehabilitation in the majority of cases of civilian head injury. Institutional rehabilitation would be required, however, for the severe or recalcitrant cases and for those whose home conditions were unfavourable. The proportion requiring institutional treatment might be expected to vary with the social conditions at the time.

Addendum

Recent planning for rehabilitation of disabled persons raises some doubts as to whether the problem of restoring the sick and injured to full work is clearly understood by the planners. According to the Beveridge Report (Beveridge, 1942), rehabilitation is "a new field" of remedial activity. The Tomlinson Report (Report of the Interdepartmental Committee on Rehabilitation, 1943) states that "rehabilitation in its strictly medical sense means the process of preventing or restoring the loss of muscle tone, restoring the full functions of the limbs, and maintaining the patient's general health and strength. (This is apart from special rehabilitation treatment required for particular diseases such as tuberculosis.)" The report recommends the institution of a diploma "to cover the special needs of rehabilitation." Some readers might conclude from these statements that rehabilitation is a new technique of treatment on physical lines, to be conducted by specialists.

There is nothing new about rehabilitation. For example, it has been practised systematically for over 50 years by those responsible for the care of the blind and to what high standard this work has been raised in this country may be seen in the British Council's fine documentary film *Out of the Night*. In each broad group of maladies the methods of after-care are to a considerable extent specialized. In the case of blindness this is obvious. After limb injuries the doctor who is responsible for getting the patient fit for work must be competent to judge whether the position of the bone and the union of the fracture are satisfactory; and in this group of cases physical re-education is important. After head injuries rehabilitation must always be partly based on thorough neurological examination; physical re-education, as has previously been pointed out (Cairns, 1942a, 1942b), plays a small part.

If there is one thing common to rehabilitation after all varieties of accident and disease it is the need for study and understanding of the personality of the patient and of his social circumstances, and this should be the duty of every doctor who treats a patient. The "new" things in rehabilitation are the more general realization by the medical profession of its responsibilities for convalescence of all patients, and the formal recognition of the part which a patient's personality plays in his readjustment after injury or disease. The importance of the social worker in rehabilitation is also becoming more generally accepted.

* The importance of the psychological factor in limb injuries was clearly recognized by the Delevingne Committee, who wrote (Report of Interdepartmental Committee on Rehabilitation, 1939, p. 52): "The rate and degree of recovery will depend not only on the nature of the treatment given for the physical injury but also on the individual mental 'make-up' of the injured man"; and again, "The witnesses generally were agreed that a psychological factor was present in varying degree in the majority of cases, and that this was often a dominant fact r in retarding recovery."

It would be harmful if people came to think that rehabilitation consisted of physiotherapy or some other technical method of treatment, or that it was the particular province of any group of specialists. To set up a specialty of rehabilitation would be akin to establishing specialties for diagnosis or for therapy. In a national scheme all varieties of medical specialist would be involved, and the general practitioner and the industrial doctor would be more essential than any of them. The whole medical profession would be involved. In ancillary services the social worker would be at least as important as the masseur.

Extension of rehabilitation to all sick and injured persons would obviously require a large increase of social workers and doctors, whose training for this work would tend to become standardized. But in each group of diseases or injuries successful rehabilitation depends to some extent on special knowledge of the disabilities produced by the disease or injury in question, and of the reactions of patients to these disabilities. Trained experts would deal with the cases requiring institutional after-care, mostly in special centres, from which advances in knowledge of the social aspects of ill-health might be expected. But, if the experiences with head injuries are any guide, it would seem that much of the after-care of the nation's sick and injured should continue to be directed by the doctor who treats the patient in the acute stage of his illness. If in his student days he can be taught the after-care of patients in a practical way, and if he can be supplied with more precise knowledge of the social prognosis of diseases, and with adequate assistance from social services and from employers, this task should not be beyond him.

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REHABILITATION IN AN E.M.S. ORTHOPAEDIC UNIT

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The establishment of orthopaedic centres in the Emergency Medical Service stimulated those working in them to tackle the problem of rehabilitation, already carefully investigated by the Delevingne Committee. With few exceptions it had been the custom in civilian practice to discharge a patient when fit for light work and still maintain some supervision of his further recovery as an out-patient. In the case of Service patients (who have formed the majority of those treated in this centre) the disposal was not so easy, for discharge from hospital removed them completely from the supervision of the surgeon. The danger of too early discharge from surgical supervision is easily seen; a typical example will make the point clear. In civilian work it had been our practice to discharge meniscectomy cases from hospital two weeks after operation and to continue treatment as out-patients. Service patients retained for a further fortnight have usually acquired full knee movement, have a fair quadriceps and no effusion, and are able to walk several miles without undue pain or fatigue. No doubt some of these men, if returned to light duties, would rehabilitate themselves, but many would sustain some minor trauma, develop effusion, and be sent back to hospital some months later with a history of recurrent effusion and marked quadriceps insufficiency. The problem of rehabilitating such patients is then much more difficult than if it had been dealt with in the immediate post-operative period.

Before discharge from hospital a patient should fall into one of the following groups:

(*a*) Fit to return to full duties in his original category.

(*b*) Fit to return to duty in a reduced category; usually cases which have progressed satisfactorily, but in which some residual disability remains—e.g., limitation of elbow movement after fractures in the region of the elbow-joint.

(*c*) Fit to be transferred to a Command convalescent depot and undergo graduated Army training. This includes cases in groups (*a*) and (*b*); it also includes patients who have improved beyond the limit of possible relapse but who are not quite fit for duty—e.g., lower-limb fracture patients who can walk and run easily and require only time and graduated use to complete their full recovery.

(*d*) Patients who are unfit for Service duties and are discharged from the Service. These fall into three groups: (i) Patients fit to return to their full pre-Service occupation; (ii) patients unfit to follow their pre-Service occupations, but fit to undergo training at a Ministry of Labour training establishment; (iii) severely disabled patients who require vocational training.

The majority of the cases so far treated have been in group (*a*), (*b*), or (*c*).

Organization

When the need for a rehabilitation annexe was appreciated we were fortunate in securing for our purpose a country house, within reasonable distance of the hospital yet far enough away to make a definite break in hospitalization. The house, capable of accommodating 50 patients, is situated in ample grounds, with two large lawns suitable for outdoor games and exercises, a large indoor riding school (now converted into a gymnasium), and an open-air swimming pool. Outbuildings have been converted into recreation rooms. As the work progressed and the value of removing ambulatory cases from a hospital atmosphere became obvious, the original annexe was found to be too small, and near-by B.R.C.S. auxiliary hospitals were utilized as subsidiary rehabilitation centres.

The rehabilitation annexe is staffed by a resident masseuse and P.T. instructor. Each auxiliary hospital has an Army P.T. instructor attached. An occupational-therapy hut has been established at the parent hospital and liaison with the annexes is made through regular visits of one of the staff.

Auxiliary Hospitals

The relation between the parent hospital and the auxiliary hospitals, and the place of the latter in the scheme of rehabilitation, will best be appreciated by following the progress of patients with fractures of the tibia and fibula from the hospital, through the auxiliary hospital to the rehabilitation annexe.

Rehabilitation, it has been stated, begins not in a special centre but in a hospital bed, and ends with a return to full pre-accident activity. All bed patients perform general and special bed exercises regularly. For those confined to bed with leg injuries occupational therapy of a remedial nature is not possible, but diversional work is started in bed. We are fortunate in the situation of our hospital in pleasant country surroundings; beds are pushed out of doors in good weather, and even if the patient's stay in bed is prolonged there is no need for him to see "only the stone walls of hospital wards" (Watson-Jones, 1942).

As soon as leg-plaster cases are considered suitable for walking a sole-plate is applied to the plaster. This consists of a wooden plate with heel and metatarsal bar, the heel and bar being shod with rubber. We prefer this to the Böhler iron, as a heel-and-toe gait (so rarely attained with a Böhler iron) is easily possible with this sole-plate. Patients walk first with the aid of crutches and then with two sticks. Later they may discard their sticks; but we are in no hurry for them to do this, and prefer that they should retain the sticks and walk with a normal gait rather than that they should discard them and

acquire a limp. When a patient is walking satisfactorily in plaster he is transferred to one of the associated auxiliary hospitals. To these auxiliary hospitals go all cases in walking plasters, upper-limb fractures in and out of plasters, etc.

Here the day begins with general exercises in which all patients join. Later, group exercises are carried out, particularly directed to the affected limb. We find general exercises *en masse* useful, as the men in plaster vie with those out of plaster in the energy of their movements, and it is remarkable how small a disability a long leg plaster can become. Exercises are followed by and interspersed with organized games. Those unable to take part in organized games indulge in less energetic pastimes: croquet is a particular favourite with the early walking-plaster cases, and a man who says he can walk only a few hundred yards without tiring will walk much farther in the course of an afternoon's heated croquet.

We endeavour to find jobs at the auxiliary hospitals to act as occupations with a therapeutic value, although diversional work is continued in the evenings. In addition to the ordinary fatigues of bed-making and keeping their rooms tidy, the men help in the kitchens (washing-up is a useful exercise for wrist and finger injuries) and in the gardens, mowing the lawns, weeding, and keeping the paths tidy: following a motor lawnmower is a helpful method of re-educating slow walkers. The more capable men have helped with harvesting and flax-gathering.

At the appropriate time the patient in plaster is returned to the parent hospital for review. The plaster is removed, the limb examined, and check radiographs taken. If the fracture is not soundly united plaster is reapplied, and the man returns to the auxiliary hospital for a further period. When union is sound the patient mobilizes the limb in bed for a few days, and then walks under the supervision of a masseuse. When he is walking satisfactorily he is transferred to the rehabilitation annexe.

Rehabilitation Annexe

To this annexe are transferred all cases of fracture out of plaster (except minor cases requiring little rehabilitation), fractured spines, both in and out of plaster, severe soft-tissue injuries, and all knee-joint injuries—e.g., cartilages three weeks after operation. During the year Sept., 1941, to Aug., 1942, 295 patients were admitted to this annexe. The majority of them had sustained lower-limb injuries: there were 87 cases of lower-limb fractures and 155 cases of knee-joint injuries, including meniscectomies and fractures into the knee-joint.

Work begins at 8.30 a.m. with half an hour of general P.T., in which all the men join, and, so far as is possible with the limited staff available, the patient's day is organized from then onwards until 4.30 p.m. Following the communal exercises, the men are split into groups according to their capacity and the site of their injury. One group may have a spell of graded exercises, a second group perform resistance exercises in the gymnasium, whilst a third group indulge in remedial games. All treatment, whether in P.T. classes or by resistance exercises, etc., is liberally interspersed with rests. We must never overtire the muscles we are trying to redevelop, nor throw too much strain on a joint which is mobilizing and not yet controlled by sufficiently strong muscles. To hurt the patient by too vigorous or too prolonged treatment is not only to lose his confidence but to retard his progress. A certain amount of pain is inevitable as a joint released from plaster begins to mobilize, but by the judicious graduation of exercises, the use of radiant-heat baths, massage, novocain injections, and manipulation in selected cases, treatment can proceed with minimal discomfort.

The morning's work ends with a period of organized games or swimming before lunch. In the afternoon a similar programme is carried out, games taking up a larger proportion of the time, until tea-time. From tea-time onwards (about 4.30 p.m.) the men are free to do as they please. There are facilities for indoor games. Many walk in the surrounding country in the summer; a larger number prefer to continue the diversional work they have learnt as bed patients in the parent hospital.

Knee-joint Injuries

All cases of meniscectomy are transferred to the rehabilitation annexe three weeks after operation. The range of knee-joint movement is measured, the presence or absence of effusion noted, and the quadriceps power estimated by weight and pulley. Treatment is directed towards redeveloping the quadriceps. Regular quadriceps drill in groups under supervision is instituted, and the men are instructed to contract their muscles at all times during the day. Quadriceps drill has already been taught pre-operatively and carried out post-operatively at the parent hospital, but some patients are apt to be forgetful or lazy unless a supervised routine is introduced: in addition, by performing the drill under supervision one is able to get the last ounce out of a quadriceps contraction. A definite rhythm is introduced into the exercise, one of the more advanced patients acting as "stroke." Faradism is not used as a routine. There are some patients, however, who appear to have lost the idea of how to contract their muscles. These men receive faradic treatment, being encouraged to try to hold voluntarily the contraction obtained by electrical stimulation. When they have rediscovered the knack of producing a really good contraction themselves the faradism is discontinued.

If there is no effusion or only a minimal effusion (as in the majority of cases on arrival at the annexe) the patient joins a class doing light P.T. Exercises are mainly non-weight-bearing at first, progressing to weight-bearing exercises by the end of the first week. General exercises are also introduced. Careful supervision is maintained, any tendency to effusion being considered a contraindication to increasing the difficulty of the exercise. After the first week it is usually safe to introduce group games—e.g., basket-ball and ground hand-ball. Nicoll (1941) has drawn attention to the risk of introducing games too early in leg cases, on account of the danger of sprains when joints are not adequately controlled by muscles. In the early stages of recovery we have overcome this by making walking compulsory in all games, running counting as a foul and being penalized. On the whole our experience has been that most sprains have occurred during off-duty periods when the patient has not been supervised and has been taking liberties with his limb.

Once a week the power of the quadriceps is estimated by weight and pulley. Originally we treated these cases by daily weight-and-pulley exercises. We found, however, that many men complained of pain under the patellar ligament when doing the exercises, and that pain, rather than a weakened quadriceps, seemed to be responsible for delay in improvement. We have now discarded the routine use of pulley exercises in meniscectomy cases, and as yet have not had reason to regret this step. The weekly pulley exercise is retained as a measure of quadriceps power.

The patient is considered fit for discharge when the quadriceps of the operated leg has regained power to 75% of the good leg, as estimated by weight and pulley, the patient having a full range of painless movement and full confidence in the knee.

The rehabilitation annexe is also used as a diagnostic centre for obscure knee-joint injuries. The difficulties of accurate diagnosis in knee-joint injuries in Service patients have been amply stressed. Any patient admitted to the hospital with a provisional diagnosis of I.D.K. in whom a definite diagnosis cannot be established is transferred to the rehabilitation annexe. Here he quickly progresses to the final class doing full P.T. and games. During this treatment one of two things usually occurs: the knee may give way in a typical manner and the diagnosis become apparent, or the patient may be rehabilitated with a painless knee in which he has full confidence. A few cases do not respond in either of these two ways; they still have painful knees, with a feeling of insecurity and a weak quadriceps. Some are undoubtedly cases of early arthritis, and are referred to a medical board.

Occupational Therapy

A large hut has been equipped for occupational therapy at the parent hospital. The department is staffed by technicians trained in the various handicrafts, and the work is supervised by a medical officer and the senior masseuse. This enables the work of the occupational-therapy and physiotherapy departments to be co-ordinated satisfactorily. We agree with Watson-Jones (1942) that a remedial workshop is not a rehabilitation centre, and in the treatment of Service injuries occupational

therapy is only an adjunct to more active rehabilitation. We have found it particularly useful in the early mobilization of stiff joints—e.g., fingers and shoulders. In patients so severely injured as to be discharged from the Services—in which more energetic treatment is ruled out by the disability—we have found occupational therapy of considerable value. In reconstructional surgery of the severely injured it will no doubt prove a useful preliminary to the later vocational training.

Medical Staff

The work in the occupational-therapy department at the auxiliary hospitals and at the rehabilitation annexe is supervised by one member of the staff who has taken a particular interest in it and who sees the patients regularly. We feel that in the absence of a full-time rehabilitation officer this supervision is best done by one of the surgical team, who is thereby enabled to establish continuity of treatment. We feel also that in some ways he has an advantage over the full-time rehabilitation officer, for the role of the medical man in rehabilitation, apart from supervising and detailing treatment, is largely that of a medical whip and a mental poultice. The patients are, on the whole, more willing to be spurred on by the surgeon who has already had them under his care. The work requires patience, tact, and driving power, and one is more able to drive up to the patient's limit if one has already gained his confidence and also has a clear conception of the pathology of each case. No doubt the time will come when all rehabilitation will be carried out under the care of full-time officers; but we feel that their work should be closely co-ordinated and supervised by those responsible for the previous surgical treatment.

This development in rehabilitation work has been made practicable by the co-operation of the Regional Hospital Officer, Major-Gen. R. W. D. Leslie, and thanks are due to him and his deputy, Dr. A. Alan Forty, for their willingness to give every assistance in the establishment and equipment of the rehabilitation annexe and in the co-ordination of the work in the auxiliary hospitals.

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A UNIVERSAL APPARATUS FOR PERORAL INTRATRACHEAL ANAESTHESIA

BY

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WITH THE ANAESTHETIST'S POINT OF VIEW

BY

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There is no branch of surgery in which the surgeon is more intimately associated with the anaesthetist than in oral surgery, and more particularly cleft-palate operations; with this excuse I take the liberty of expressing my ideas on the subject.

Intratracheal anaesthesia for oral surgery is unsatisfactory, because there is no apparatus universally applicable to the wide variety of common operations. What are the desiderata for a peroral intratracheal anaesthetic in an infant who may have to be anaesthetized for an hour or so? Infants are quoted because they are the most difficult subjects to anaesthetize, and it was upon 400 hare-lip and cleft-palate cases that the universal apparatus has been evolved.

Desiderata

Mechanical.—(1) It must be possible to use the apparatus with or without a Davis gag—i.e., for hare-lip or cleft-palate cases. (2) It must stay in position without packing once it is introduced. (3) It must not be kinked or squashed. (4) The intratracheal portion must be of rubber to produce the minimum tracheitis or laryngitis. (5) It must be easily sterilized. (6) The apparatus must be able to fit snugly into the gag without pressing it on the lower lip.

Physiological.—(1) An infant must be kept in the second stage of anaesthesia indefinitely. Contrary to the usual teaching, gas-and-oxygen is the perfect anaesthetic in infants so long as the percentage of the gases is controlled. All the cases had nitrous oxide after induction, and among them were cases of protruding premaxilla hare-lip in infants 1 month old in which the premaxilla was replaced in addition to the bilateral lip repair—a long and shock-producing operation. There was no operative or anaesthetic mortality. (2) Carbon dioxide must be expelled as near to the lungs as is possible because infants will not tolerate a raised alveolar carbon dioxide percentage. (3) No positive pressure or rebreathing must be allowed in infants because of the coincident raised blood pressure and respiration depth.

Description of the Apparatus

The universal apparatus to be described fulfils these conditions. It is made in two sizes, for adults and children respectively, and consists of an intratracheal part (Fig. 1, A) and a chin-piece (Fig. 1, B).

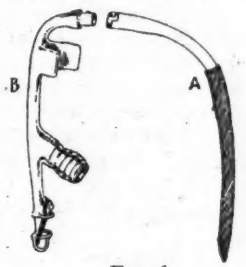

FIG. 1

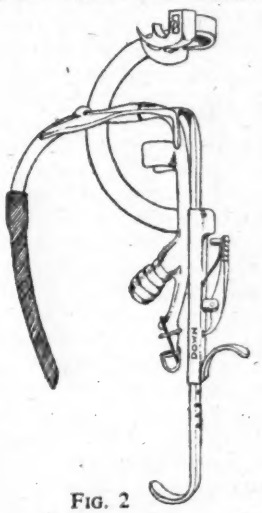

FIG. 2

Intratracheal Part.—This consists of a rubber tube pressed firmly on to the serrated end of a curved metal tube. Three sizes and curves of the metal portion are made for children, and they correspond to sizes 00, 0, and 1 Magill nasal tubes. The rubber portions are 2½ in., 2¾ in., and 3 in. long respectively, and are used on children from 1 month to 4 years old. The adult intratracheal sizes are made to demand; the chin-piece corresponds to a No. 10 Magill. The intratracheal portion is passed by means of a laryngoscope and united to the chin-piece by a bayonet joint which works through a right-angle, ensuring that it cannot be lost down the throat.

Chin-piece.—The inspiratory opening is placed under the chin at an angle to the main tube, promoting easy inspiration; it will be noticed that the inspiratory lumen is as large as the largest intratracheal tube. The expiratory opening is guarded by a thin rubber valve. In the adult model the valve can be removed and replaced by a length of rubber tubing or a metal cap should rebreathing or a closed circuit be desired. A curved chin-strap rests below the lower lip to prevent the apparatus from rotating, and this is fixed to the chin by adhesive strapping.

Fig. 2 shows how snugly the apparatus fits a Davis type gag: the only alteration necessary for the apparatus to fit a standard gag is the addition of a slot in the tongue depressor to allow the metal part of the tube to lie out of the way.

THE ANAESTHETIST'S POINT OF VIEW

The standard Boyle's gas-oxygen apparatus, as supplied by the Ministry of Health to Emergency Medical Service hospitals, has been used with this apparatus. The only expiratory valve employed is that which is attached to the chin-piece and already described.

Induction.—The infant, premedicated only with atropine, is induced on the operating table, the agent of choice being vinyl ether on an open mask. This provides a quick induction with ready relaxation of the jaw, the required depth being quickly reached and as quickly recovered from, and the laryngeal spasm so common with ethyl chloride is very rarely encountered.

Intubation.—The passing of the tube may present a few difficulties, particularly in infants of 4 weeks or so. A small-size laryngoscope is used, and the tube is passed via the mouth by direct vision. In adults it is not always necessary actually to see the vocal cords when passing the tube if the epiglottis

and oesophagus are clearly in view, but in the infant it is essential to make sure that the tip of the tube passes through the vocal cords, otherwise it may slip behind the larynx and down the oesophagus. To bring the cords clearly into view the shoulders are first raised by an assistant and then, when the epiglottis is seen, gently replaced on the table. It is advisable not to touch the epiglottis with the laryngoscope, as this may result in immediate spasm of the vocal cords. Attempts to pass the tube should not be made until conditions for so doing are at their best; second and third attempts are more difficult, and are harmful to the child. The infant should be in the third stage of anaesthesia, breathing quietly and easily; if the plane is not deep enough laryngeal spasm will probably be encountered, preventing passage of the tube and necessitating a second attempt.

Maintenance.—The gas and oxygen are turned on just beforehand and the apparatus laid to hand ready connected except for the bayonet joint. Once the tube is *in situ* and connected, gas and oxygen and sometimes two or three whiffs of ether only are required. The rate of flow is about half the rate usually necessary with ordinary intubation and expiratory valve. For a child 1 year old 2 litres of N_2O and 1/2 litre of O_2 per minute are necessary. The anaesthesia lightens rapidly to the second stage with reappearance of the pharyngeal reflex, which the surgeon can evoke when he wishes to assess the adequacy of his operation. As the last stitches are being inserted the gas is turned off, and when the tube is removed the anaesthesia is light enough for the child to cry and cough.

Comparison with Other Methods

Simple Oral Anaesthesia.—Comparison with other methods of anaesthesia, such as a hooked tube in the mouth or an attachment to tongue forceps delivering ether and oxygen, shows very obvious advantages. Without an endotracheal tube it is impossible to keep the child on a light even plane of anaesthesia. Either the child is lightly anaesthetized and by its gagging and moving impedes the surgeon or else it is deeply under, with consequent disadvantages to itself and greater risk of post-operative complications, formerly so common in this branch of surgery.

Magill Armoured Tube.—Advantages of the apparatus over the Magill unkinkable endotracheal tube are: (1) It stays in place without a gag, a gag being unnecessary in the case of hare-lip operations, as the metal portion extends over the back of the tongue. The Magill tube is inclined to ride up even when packed, because of the metal spiral it contains. (2) It cannot wear out if used with a gag, as only the metal portion comes into contact with it. Fresh rubber ends can be fitted each time if necessary, as it is inadvisable to use tubes after they have become softened by boiling. (3) A fully controlled anaesthesia is obtained. The large-bore inlet allows gases to be drawn into the lungs as required by the child's respirations and exhaled easily by means of the simple valve close to the face. This is not the case with the Magill tube, in which gases under slight positive pressure are supplied by the small-bore inlet tube, no bag or expiratory valve being used: incidentally, omission of a bag causes a waste of gas. Also, the funnel-shaped expiratory opening of the armoured tube, perhaps elongated with rubber tubing, may upset the gas-oxygen percentages should the child increase its inspiratory effort from external causes. (4) Actual passing of the tube is slightly easier owing to its curve; with this apparatus the anaesthetist's right hand is at the side of the mouth and therefore does not obstruct the view of the glottis.

Magill Nasal Tube.—This interferes with the contraction of the nasopharyngeal sphincter and any manipulations that may be necessary with the nasal mucosa. If a rubber tube is used orally with a gag it is apt to be squashed or kinked by the tongue depressor either on the tongue or against the posterior pharyngeal wall.

Disadvantages of the Apparatus.—The disadvantages should be mentioned. The apparatus consists of three portions, and it may be argued that these could come apart; but if that possibility is borne in mind and the rubber tube is pushed on up to the upper limit of the serrations this should never happen: it is important to fit the right-sized rubber to the right-sized metal. In an earlier model the bayonet joint between the two main portions occasionally slipped undone, but the improved joint working through a right-angle precludes this possibility.

Comment

To sum up, then, this apparatus provides an even, light, controlled gas-oxygen anaesthesia. Once the apparatus is in position, a procedure which should take altogether from five to seven minutes, neither anaesthetist nor surgeon has any further worry: the child is round immediately the operation is finished, and there are no post-operative complications due to the anaesthetic. Although originally designed for use in children it is evident that the apparatus will be a valuable addition to the anaesthetist's outfit for all operations on the head and neck in adults.

Those who are interested in the practical application of the apparatus (made by Down Bros.) are welcomed at Hemel Hempstead Base Hospital on Tuesdays at 9.30 a.m.

IMPETIGO CONTAGIOSA IN THE SERVICES

WITH SPECIAL REFERENCE TO ITS TREATMENT WITH SULPHATHIAZOLE

BY

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The treatment of dermatological cases in the Services is in many respects more satisfactory than in civil life, as the average contagious skin case, to prevent further infection in the unit, is admitted to hospital and up-to-date methods are available. Compared with those in civil practice, the cases of impetigo treated in the Services are on the average more severe, and a certain number proved resistant to treatment, many healing slowly, sometimes because of a persistent folliculitis and sometimes because of tiny re-inoculations, causing small oozing lesions.

In a military hospital entirely for dermatological patients 1,432 cases were admitted during the five months from May 14 to Oct. 14, and 396 of these were impetigo, so that there was ample opportunity of studying the action of drugs on this disease. A number of types were encountered, which for clinical purposes might be divided into the following groups: (1) Extensive, with excessive crusting (i.e., often the whole face affected). (2) Extensive, with moderate crusting. (3) Extensive, with small weeping crusted lesions (i.e., up to 1 cm. diameter). (4) Mild—one or two areas. (5) Mixed: excessive crusts (indicating a streptococcal origin), with superficial vesicular lesions and perhaps folliculitis (staphylococcal). (6) Staphylococcal type (i.e., initial small bullae), followed by superficial crusting with slight inflammation, peripheral vesiculation, and residual pigmentation (Roxburgh, 1941). (7) A type of seborrhoeic skin characterized by small superficial erosions, and often associated with a retro-auricular dermatitis.

Differential Diagnosis

The differential diagnosis proved to vary somewhat from that in civil practice, and the following conditions seemed to be easily mistaken for impetigo.

1. *Respirator Dermatitis.*—Every case of this was referred as an impetigo, as the cheeks, chin, and brow were covered with golden-yellow crusts with marked exudation; the typical distribution, especially the involvement of the submental region, and the sharp demarcation of the lesions, followed by a positive patch test, established the diagnosis.

2. *Sycosis.*—The duration of the disease was often alone sufficient to make the diagnosis, without the clinical appearances, but some cases of impetigo of the beard region which had been present for several weeks were tending to drift gradually to a true sycosis.

3. *Herpes Simplex.*—In the crusted stage it was virtually impossible to distinguish this disease from a mild impetigo if an intelligent history was not obtainable. There seemed no doubt that some cases of extensive impetigo had begun as an infection of the original herpes.

4. *Seborrhoeic Dermatitis.*—This disease, especially seborrhoeic eczema affecting the scalp and ears, was often labelled impetigo, though it is difficult to draw a dividing line between the diseases in some cases.

5. *Hutchinson's Summer Prurigo.*—The few cases seen were referred for admission as cases either of impetigo or of respirator dermatitis.

6. *Tinea Circinata.*—Circinata impetigo was occasionally thought to be a tinea circinata of the face.

7. *Insect Bites.*—One or two patients with a bullous reaction to insect bites were sent in as cases of bullous impetigo.

Treatment

The routine treatment for impetigo contagiosa was 2% aqueous solution of gentian violet painted on gently night and morning, with a bland grease such as 1% ichthyol paste, zinc cream, or soft paraffin, applied as required to prevent excessive drying of the skin with the paint and to help to soften crusts. It was found that the pure "viola crystallina" was much better than the commercial gentian violet. Among other preparations used was ung. quinolor co. (Squibb) or the Army issue of ung. benzoylis peroxidi, which proved to be excellent, especially for the subacute type with folliculitis; while sulphanilamide, sulphapyridine, sulphathiazole, sodium sulphathiazole, sulphadiazine, and sulphamethazine were also used.

The effect of sulphanilamide and sulphapyridine locally was sometimes brilliant but often disappointing. Sodium sulphathiazole, sulphadiazine, and sulphamethazine were very similar in action, the crusts gradually disappearing, but rapid and complete cure was not often obtained. Sulphathiazole undoubtedly proved to be the drug of choice, and results were obtained which seemed to indicate that it should be used in practically every case of impetigo.

The average stay in hospital for all cases of impetigo, no matter how treated, was 14.6 days; during the period May 15 to Aug. 27, 1942, 273 cases of impetigo contagiosa were admitted. Of these, 120 were treated with sulphathiazole in a water-miscible cream or a starch and zinc oxide paste, and these cases are shown below in more detailed analysis. Altogether 242 cases of impetigo have been treated in the hospital with this drug during the past 6 months. It was found that sulphathiazole was economical in use, for many cases required less than half an ounce of the cream or paste to complete a cure, though in the severer cases more than an ounce had to be employed. Application was a very simple matter—an important point when the treatment is more widely used. The preparation was smeared gently night and morning on the affected areas and the adjacent healthy skin. It was not necessary to remove crusts in any way, as they dried up and disappeared completely in two or three days. This obviated any risk of the rough removal of crusts by forceps or oil, which so often leads to trouble. Patients were advised to shave every day (the razor being sterilized daily in antiseptic), but were told to avoid any tender or badly crusted area. They were allowed to wash their face with plain soap and water, drying very gently with the towel. The effect of the treatment was clearly shown by the number of men who asked hopefully if they might have this form of treatment after they saw the dramatic results in other patients.

To test the efficiency of sulphathiazole, various strengths were employed: 2½%, 5%, and 10% in a water-miscible cream, and, as a contrast, 5% in paste made with 15% zinc oxide and 15% starch. Of the 120 cases of various types of the disease 27 were not cured by sulphathiazole, 17 of these being treated by the 2½% cream, which evidently was too low a concentration of the drug. The 93 cures were obtained in an average time of 6.8 days, which compares very favourably with the average stay of impetigo cases in the hospital (14.6 days). All cases treated and not cured with the 2½% cream tended to clear up to some extent, and the heaped-up crusts rapidly disappeared, but there remained either an obstinate folliculitis or tiny oozing patches with slight yellow crusts, both of which were resistant to treatment. From this it seemed that a 2½% concentration was quite sufficient to cause the disappearance of all streptococcal lesions, but that the staphylococcal infection was apparently unaffected.

Of the 95 cases treated with the 5% and 10%, 10 were not cured, 7 of these being of the superficial staphylococcal type with very little crusting, and 3 of the patients were men with a seborrhoeic dermatitis of the flexural type. The 7 cases of staphylococcal type responded quickly to 2% gentian violet, while the 3 of seborrhoeic nature healed well on ung. benzoylis peroxidi.

Analysis of Cases

1. *10% Sulphathiazole in Cream*

Patients treated	19
Patients not cured	1
Patients cured	18
Average rate of cure for 18 patients	7.9 days

2. *5% Sulphathiazole in Cream*

Patients treated	30
Patients not cured	3
Patients cured	27
Average rate of cure for 27 patients	6.11 days

3 *2½% Sulphathiazole in Cream*

Patients treated	25
Patients not cured	17
Patients cured	8
Average rate of cure for 8 patients	4.77 days

4. *5% Sulphathiazole in 15% Starch and 15% Zinc Oxide Paste*

Patients treated	46
Patients not cured	6
Patients cured	40
Average rate of cure for 40 patients	6.5 days

5. *5% Sulphadiazine in Paste*

Patients treated	20
Patients not cured	14
Patients cured	6
Average rate of cure for 6 patients	12.3 days

Discussion

These results are in accord with those published in the U.S.A. by Sams and Caplands (1941), who treated 53 cases with sulphathiazole ointment in strengths of 5 to 25% and cured their cases in 4 to 10 days, with an average of one week. Also in the U.S.A., Winer and Strakosch (1942), using 5% sulphathiazole in a water-and-oil emulsion, treated 60 children, the time of cure being 4 to 10 days; while Steigman (1942), treating 51 children—most with impetigo following scabies—found that 5% sulphathiazole in paraff. moll. flav. healed them in 4 to 5 days. It is for several reasons somewhat difficult to compare the results of treatment in children with those of treatment in adults, the most important reason being the almost invariable involvement of the beard in adult males, so that shaving is an additional problem and hazard, despite sterilization of shaving appliances. Writing on impetigo in the Services, Thomson (1942) states: "The main point is the fact that all these cases on admission to hospital are of an extremely severe nature. There seems to be little doubt that, once the early stage of the disease has passed, the virulence of the organisms is so high that treatment is rendered extremely difficult. We are still left with the undoubted fact that these patients do not react easily or well to treatment."

No toxic results were observed in the 120 cases reviewed, but 3 patients treated with the drug have since developed a light-sensitivity similar to the reaction of the skin noticed in some cases treated with other members of the sulphonamide series—i.e., the areas treated became oedematous, erythematous, and crusted. This reaction soon settled down with shielding from the light, rest in bed, and the use of a soothing application such as zinc cream. Cases of ecthyma and early infective dermatitis healed well with sulphathiazole locally, but no real or lasting benefit was obtained from its use in sycosis, pustular acne, or infectious eczematoid dermatitis.

Summary and Conclusions

Sulphathiazole seems to be the drug of choice in the local treatment of impetigo.

Of 120 cases analysed, 93 were cured in an average time of 6.8 days, which compares well with the average length of stay in hospital of 14.6 days for impetigo cases.

The vehicle used for the drug seemed to make little difference to the healing rate of the skin: cases treated with the 5% paste healed in 6.5 days and those with the 5% cream in 6.11 days.

Results obtained with 5% concentration were better than those with 2½% and compared very favourably with results from 10%.

Sulphadiazine and sulphamethazine were used in a number of cases, but results were disappointing.

Sodium sulphathiazole (5% cream) gave somewhat erratic results, but was definitely better than sulphadiazine and sulphamethazine.

Quick healing was also obtained with sulphathiazole in ecthyma and early infective dermatitis, but results were disappointing in infectious eczematoid dermatitis, acne vulgaris, and sycosis.

We must express our indebtedness to Dr. Robert Forgan, medical consultant, Pharmaceutical Specialities (May and Baker) Ltd., for his kindness in supplying generous quantities of sulphathiazole.

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Medical Memoranda

A Persistent Brow Presentation

The following may be considered of interest as the case record of an unusual condition.

CASE HISTORY

A primipara aged 27, living at a remote farm, began with pains on July 13 and had a good "show." Abdominal examination was difficult on account of a muscular abdominal wall, but it was ascertained that the presentation was a vertex. Per vaginam the os showed no dilatation, but the head was felt through the fornices to be in the right occipito-posterior position. The pelvic measurements were normal. The pains were infrequent and the patient continued about her household duties until July 17, when she was seen again. The os now admitted a finger-tip. Matters remained in this state until July 20, when, as sleep was being interrupted by the occasional pains, 1/4 gr. of morphine was given. After five hours' sound rest, pains began in earnest about 3 a.m. on the 21st, the membranes ruptured at 3.30 a.m., and uterine contractions were strong and regular all day. At 3 p.m. the midwife reported that the head was visible, but in spite of strong pains was not advancing. Vaginal examination at 3.30 p.m. proved the visible portion to be oedematous scalp, the head being arrested in mid-pelvis.

A more detailed examination under light anaesthesia showed a brow presentation in the left anterior position. The frontal suture led the examining fingers to the prominent supra-orbital ridges, and beyond these the nose could just be reached. A gentle attempt was made to push the brow upwards and so convert the presentation to an occiput, but this failed, and it was decided to make a more determined effort with the help of an anaesthetist. By 6 p.m., under deep chloroform anaesthesia, a hand was introduced into the vagina and the head pushed upwards; the fingers were gently insinuated between the infant's face and back of the symphysis pubis until their tips were beyond the chin. The finger-tips were then hooked over the chin and traction exerted. The position changed with surprising ease into a face presentation, in the left mento-anterior position, and forceps were applied. The change of position completely altered the situation. With very slight traction the chin descended and turned to the front, the forceps being allowed to turn with the face. Further moderate traction delivered the chin, and the occiput slipped suddenly over the perineum. The chest and legs followed easily, and the placenta came away spontaneously ten minutes later while a first-degree tear of the perineum was being sutured.

The child was a male of 7¼ lb.; he had a marked caput over the frontal bones, and the face and lips were slightly swollen. He was in a state of mild shock, but began to breathe without intervention and was crying lustily half an hour later. One hour after delivery the mother was taking a light meal; the uterus was firmly contracted and the pulse 60 a minute. Convalescence was uninterrupted except for difficulty of micturition the next day, which required the passage of a catheter.

COMMENT

Although brow presentation probably occurs fairly often as an early transition stage in face presentations, it is recognized as a state of unstable equilibrium, and it is difficult to see how it can become persistent. In the case under consideration the face was pressed firmly against the back of the symphysis, with the chin above and the supra-orbital ridges and nose below that bone. Each uterine contraction caused a slight flexion by depression of the occiput, which only resulted in pushing the face more firmly against the symphysis. Complete flexion was prevented by the nose and supra-orbital ridges, which had passed below the symphysis and were unable to retrace the path of descent. Likewise, when the large occipito-mental diameter occupies the cavity of the pelvis, extension to a face presentation is prevented, as the face is pressed against the posterior surface of the symphysis pubis and the prominent bony chin cannot find room to slip down behind.

It appears then in a brow presentation, with a pelvis and head of normal size, that if the position does not rectify itself before the nose and supra-orbital ridges have passed below the symphysis, simple mechanical considerations afterwards prevent any change in the position.

G. H. H. BOOTH, M.B., B.Sc.

Reviews

THE VITAMINS IN MEDICINE

The Vitamins in Medicine. By Franklin Bicknell, D.M., M.R.C.P., and Frederick Prescott, M.Sc., Ph.D., A.I.C., M.R.C.S. (Pp. 662; illustrated. 45s.) London: William Heinemann. 1942.

It is often more difficult to do justice to a good book than to find fault with a poor one, and *The Vitamins in Medicine* is decidedly good. It contains ten chapters, devoted respectively to vitamin A, the vitamin B complex (including vitamin H (biotin), adenylic acid, pantothenic acid, vitamin B_6, and various other factors more or less well defined—e.g., choline, *p*-aminobenzoic acid, vitamins M, L_1 and L_2, U, bios, etc.), vitamin B_1, riboflavin, nicotinic acid, vitamin C, vitamin D, vitamin E, vitamin K, and vitamin P. References numbering in all more than 3,000 are given at the end of each chapter. The photographs of patients and structures of tissues have been very well reproduced. For many of them the country or nation to which the patient belonged is stated, indicating usefully that the people of Britain are not quite so free from gross vitamin deficiencies as they are sometimes supposed to be. The chemistry of each vitamin has been treated fully enough to help those readers primarily interested in the physiological and clinical aspects of the subject. One slip was detected: pure vitamin A has not been synthesized—only formed in very minute yield and not purified. The biological standardization of the vitamins is clearly and briefly described. Tables of the vitamin content of various common foods are given in each chapter.

Human requirements of each of the vitamins at different ages, in health and disease, and in relation to special conditions are dealt with by summarizing the findings of different workers and their hypotheses to account for these findings. Methods for detecting partial deficiencies of the vitamins in human beings are described and discussed critically, and typical cases of severe deficiency are depicted by means of photographs of the affected parts and, where possible, by photomicrographs of the affected tissues. The chief diseases that are thought to be due to a lack of vitamin A are toadskin or phrynoderma (probably the same as shark-skin, keratosis pilaris, ichthyosis follicularis, lichen pilaris, lichen spinulosus, and Darier's disease), impairment of dark-adaptation, xerophthalmia, Bitot's spots, asthenopia, lathyrism, etc. There is much conflicting evidence of the effect of vitamin B_6 therapy on cases of muscular atrophy and Parkinsonism. Beriberi is treated at some length, and also the general effects of a deficiency of vitamin B_1 on the nervous system, cardio-vascular system, and gastro-intestinal tract. The variety of conditions improved by giving vitamin B_1 is almost astonishing. Results of vitamin therapy are not always the same, and it should be remembered that a diet may be lacking in one or many factors. One clinician may clear up the condition with the missing factor, another may have to supply several factors —e.g., trench mouth seems to require both riboflavin and nicotinic acid to relieve it, and one patient's diet may lack one of these and another's may lack the other.

Apparently many more cases of pellagra have been diagnosed in this country since the cure for it has become available. Vitamin C as a cure for scurvy seemed simple until vitamin P was discovered, but other functions of vitamin C have also been discovered—e.g., in the healing of wounds (and before and after operations), in overcoming various infections, in certain detoxicating processes in the body, etc. Pure ascorbic acid is available and cheap, and apparently never does harm even if taken in excess. The relation of vitamin D to calcification, tooth formation, the endocrine glands, the blood, and infection is discussed at some length, as well as its use in the bleeding tendency in jaundice, lead and radium poisoning, healing of fractures, arthritis, and certain skin diseases.

Evidence is quoted for advising caution against overdosage. The relation of vitamin E to growth, muscular dystrophy, and nervous degeneration is also dealt with. The evidence of any human requirement for vitamin E is very conflicting. The part played by vitamin K in animal (and human) processes as an antihaemorrhagic factor is generally accepted, and most doctors now believe in vitamin P as a factor in maintaining capillary resistance.

ILLUSTRATIONS OF SURGICAL TECHNIQUE

Illustrations of Surgical Treatment: Instruments and Appliances. By Eric L. Farquharson, M.D., F.R.C.S.Ed.; Major, R.A.M.C. With a foreword by Sir John Fraser, M.D., Ch.M., F.R.C.S.Ed. Second edition. (Pp. 392. 25s., plus 7d. postage.) Edinburgh: E. and S. Livingstone. 1942.

The popularity of what may be termed the pictorial type of medical book is now established, and it is a method of presentation particularly suited to so practical a subject as surgical technique. It is said that the greater number of people are "visualists"; if this is so, the majority are catered for very fully by this new tendency. But even the "aurist" could not fail to gain information, for most of these books have an interesting text accompanying the illustrations, which makes them as clear as a practical demonstration.

The new (second) edition of *Illustrations of Surgical Treatment*, by Eric Farquharson, is a good example of all this. For the most part the book concerns itself with the treatment of fractures; the detailed photographs, of exceptionally good quality, of cases under treatment and of the appliances used are so complete that it would seem that the instruction provided is almost as good as could be gained from a personal attendance at fracture clinics over a long period. The methods described are usually orthodox, but here and there the author's inventive ingenuity is displayed in the devising of special methods of splinting or new appliances.

This part of the work, together with a short section on infusion and transfusion, occupies over 250 pages. The remaining part consists of illustrations of surgical instruments and appliances. We find this portion less interesting, since it appears to be but a summary of the surgical instrument makers' catalogues, while the occasional short descriptions are too scanty to be of any real value. There is also some redundancy: Mayo's goitre retractor, for instance, is illustrated no fewer than three times. The student up for his "exams," however, may find it a rapid means of revising the names of the commoner instruments. The quick call for a second edition is sufficient indication that the book is meeting a demand; it is certainly one which can be recommended.

PERSONAL AND COMMUNITY HYGIENE

Personal and Community Health. By C. E. Turner, A.M., Sc.D., Dr.P.H. Sixth edition. (Pp. 642. 18s.) London: Henry Kimpton. 1942.

The sixth edition of Prof. Turner's *Personal and Community Health* continues to qualify for our commendation of an earlier edition. It is a "compendious and most readable" presentation of the subject with which it deals. Under the title "Personal Health" the problem of posture receives attention. Deforming bone diseases excepted, posture is held to be simply a question of muscular balance. Where the balance is awry the muscles should be strengthened by appropriate exercises. Suitable postures are pictured for standing, bending, and sitting. A correct posture, in the author's view, is a personal asset; it displays alertness in men and grace in women, and in both reveals training and helps efficiency. Under the title "Community Health" reference is made to the diligence of life assurance companies in the United States to promote, by education and otherwise, the health of their policy-holders. In this connexion the author attaches importance to the annual medical overhaul, for which purpose, as well as for treatment, the services of a competent physician should be sought. Such a person may be recognized by his good medical degree, his training in a first-class hospital, and his high ethical code, sustained by which he does not advertise himself or offer secret methods of cure, or flit from place to place after a brief sojourn in each in order to elude the wrath of his mistreated patients. A feature of the book is the reproduction of the Children's Charter, enunciating the standards for child welfare set by the Third White House Conference. The illustrations are excellent, excepting those of insects, which might have been better chosen.

Notes on Books

Two years ago we welcomed the appearance of Sir ARTHUR HURST'S *Medical Diseases of War* in its new form, the success of which is shown by the publication of a third edition (Edward Arnold, 21s.). It has been brought up to date by new chapters on typhus and diphtheria, both of which diseases have brought new problems. There are new bacteriological sections, and fresh information on such topical subjects as cerebral concussion, scabies, mustard gas, and the treatment of bacillary dysentery with sulphaguanidine. It is the best compendium of war medicine that we know.

Preparations and Appliances

SAFETY DEVICE FOR SUCTION PUMP USED FOR OBTAINING BLOOD FOR TRANSFUSION

Dr. E. M. WATSON, Professor of Pathological Chemistry, University of Western Ontario Medical School, London, Canada, writes:

The withdrawal of venous blood for the purpose of transfusion is commonly regarded as a simple and harmless procedure; nevertheless a fatal case of air embolism involving a blood donor was recorded in the *British Medical Journal* (1941, **2**, 311). The disaster was the result of the electric rotary pump which was used to create suction reversing its action when the current was switched off. While this may be an isolated incident, it serves as a tragic example of what may happen when a mechanical suction pump is employed for the taking of blood in the absence of special precautionary measures. The implication is clear in the light of the present need for donors. A pump may be made safe by adopting some simple modification such as the installation of a safety-valve in the suction tube.

In an attempt to comply with the timely warning contained in the above-mentioned article—in effect, that any hospital making use of the rotary suction pump should take steps to have the necessary alterations made in the apparatus—the device described below was constructed.

The main accessory consists essentially of a glass ball-valve interposed in the suction current (Fig. 1). As portrayed in

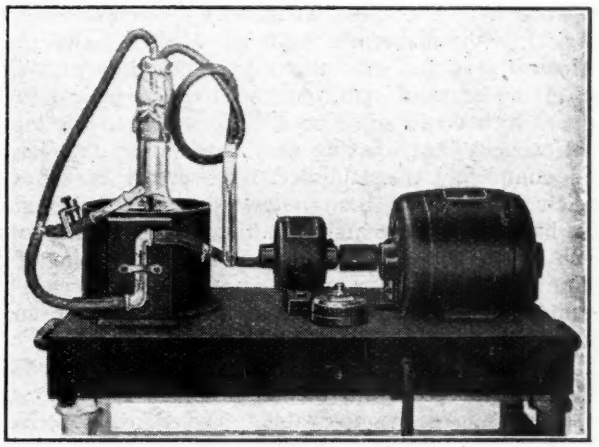

FIG. 1

greater detail in Fig. 2, the ball-valve has been fashioned from a piece of clear glass tubing, 10 mm. in diameter, within which is contained a float made from a piece of brown glass rod (A). The expanded pointed end of the float (B) has been ground to fit snugly into a hollow seat formed by a thickening of the wall of the tube (C). In order that the float may remain constantly in its proper upright position, a glass collar (D) and three short arms (E) were incorporated. When the apparatus is in operation the float bobs up and down with the action of the suction pump, but immediately the latter stops the float drops, causing the valve to close tightly; consequently air cannot escape past it toward the donor.

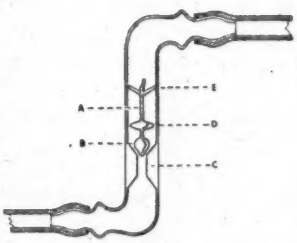

FIG. 2

As additional safeguards, two glass T-tubes are included in the system (Fig. 1). The one proximal to the safety-valve has a small external opening and serves to regulate the degree of suction as well as acting as a by-pass in the event of any back-pressure. The opening of the T-tube distal to the safety-valve contains some loosely packed cotton-wool and is controlled by means of a pinch-cock. After the desired amount of blood has been obtained from a donor the pinch-cock is released and the electric current to the motor switched off. The airtight valve closes, the pressure within and without the flask becomes equalized, and the possibility of air embolism is avoided. The contrivance has been found to work satisfactorily.

The installations described above were made and assembled by Mr. A. Barber of the Department of Pathological Chemistry, University of Western Ontario.

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REHABILITATION: THE DUTY OF SOCIAL MEDICINE

New words come into fashion from time to time, and, especially if they are polysyllables, are hailed as descriptions of new things. Even the scientific world, including medicine, is not exempt from the tyranny of the slogan. A current example is the word "rehabilitation." It is not always used with discrimination. Even the Beveridge report (para. 426) speaks of rehabilitation as "a new field of medical activity with great possibilities." The truth is, as Matthew Arnold said of the word "Philistinism," which suddenly became fashionable in his time, we have not had the word before because we have had so much of the thing. It is the name, not the thing, which is new.

Medical men for generations have practised rehabilitation in the sense of returning the disabled patient to his former work or to some new work suited to his diminished capacity, not relaxing their supervision until he has been completely re-established. In several branches of medicine there have been noteworthy movements along these lines. The more humane attitude towards the insane, which began with the abolition of the old system of restraint and has gone on to vast improvements in care and treatment, including occupational therapy, is an example of rehabilitation in a field which might have been considered almost hopeless, and it has been demonstrated that patients discharged from mental hospitals into after-care are by no means unemployable. The village settlements or colonies for the tuberculous, of which Papworth was the first, furnish another example; and the institutions—at Leatherhead, Exeter, Oswestry, and Erskine House, Glasgow—for restoring the disabled and limbless yet another. The Army long since provided physical development centres, convalescent depots, and hospitals for nervous conditions, all closely linked with the Service; and in industry there are the rehabilitation centres at Berry Hill Hall in the Midland coalfield, at the L.M.S. Hospital in the great railway centre at Crewe, and at the Albert Dock Hospital in London, all run by surgeons and by a team familiar with every kind of work in the industries concerned.

It is true, nevertheless, that rehabilitation has lately received a new significance. Members of the medical profession feel increasingly that their obligations extend beyond the recovery of the sick person. They realize how profoundly the convalescent stage may be affected by occupation or prospect of occupation, and how necessary it is for the convalescent to have medical guidance if, on the one hand, he is not to return to work too soon, and, on the other, he is not to delay until he has lost his skill and his heart for the work. As Brigadier Cairns says in the article which we publish in this issue, the new thing in rehabilitation is the very general realization by the medical profession of its responsibility for convalescence and its formal recognition of the part which a patient's personality plays in his readjustment after injury or disease.

Rehabilitation, which in its medical sense has not yet got into the Oxford Dictionary, was first mentioned in relation to co-ordinated efforts to condition the patient's recovery after a fracture, which is the most fertile single cause of permanent disability. It was regarded then as the function primarily of the physiotherapy department, and in a good many minds rehabilitation still means no more than physical medicine. Actually it reaches out far beyond that province and beyond the province of any group of specialists; it brings in occupational therapy, vocational training, and the arousal and maintenance of mental interests. The B.M.A. put forward its ideas on the subject in the report of its Committee on Fractures eight years ago, and developed them further in its evidence before the Departmental Committee on Workmen's Compensation and in a later report on industrial health. It proposed rehabilitation units for temporary light work in which a group of patients would be under the day-by-day personal supervision of a medical man. It was never in mind that there should be detached centres, a sort of distant annex to the factory, directed by non-medical personnel.

The Beveridge report uses a dubious phrase when it says that rehabilitation must be continued from the medical through the "post-medical stage" until the maximum of earning capacity is reached. A good deal depends on the definition of "post-medical"—the word itself is no definition at all. Is it a stage from which medical care is withdrawn, and rehabilitation (or reconditioning, or resettlement, or whatever word is used) is left in charge of industrial instructors, perhaps with the help of a masseuse? It must be in charge of somebody. The patient himself can, and indeed must, co-operate, but he cannot be the overseer of his own rehabilitation. The Tomlinson Committee (the Interdepartmental Committee on Rehabilitation),[1] which makes some wise and bold recommendations, does not use the word "post-medical," but it speaks of post-hospital rehabilitation in which, instead of continuous medical supervision, medical advice will be at call, the presumption being that it will only be called when there is some retrogression in the man's condition. The post-hospital period is expected to bridge the gap between the completion of hospital treatment and the establishment of fitness for such employment as is within reach of the disabled. This reconditioning is to take place at residential centres in various parts of the country, from which in due course the persons concerned will either go back to their old employment or enter upon an educational training course for a new job. But the Tomlinson Committee, enlightened as most of its recommendations are, comes down on the industrial rather than on the medical side of the process. It does not consider that whole-time medical superintendents are necessary at these centres. In other words, the function of medicine in this highly critical field will be consultative rather than supervisory.

The matter is important because the Tomlinson report, overshadowed though it is by the social security proposals, may well result in a very considerable reorganization of industry. The longer the war lasts the greater will be the number of the disabled, and as it is "total" war it is not this time a question only of the crippled soldier, but of dealing with crippled civilians—men, women, and children. No one can predict the final number, which may well be formidable, and to it are constantly being added the victims of mechanized industry and transport and those handicapped by conditions following upon disease or congenital deformity. This is not a matter for charity any more than is the payment of interest on the National Debt. The

[1] Cmd. 6415. H.M. Stationery Office. (9d.).

country must accept the fact that a certain proportion of its citizens are permanently disabled, although in the great majority of cases not to such an extent as to unfit them for some employment, and must consent to any slowing of the tempo of industry or any lessened skill in service which the absorption of these people may involve. The important thing, for the sake of the disabled themselves as well as for the sake of the community, is to readjust them to such work as they can do. It will mean a good deal of fitting, not merely of square or rounded pegs, but of pegs presenting every kind of asymmetry, into holes as appropriate and congenial as possible. In that task—as important as any in the post-war era—it is the medical profession which must take the leading share; and, with great respect to the famous author of the phrase, to talk of a "post-medical stage," meaning a non-medical stage, or even of a post-hospital stage in which the doctor is summoned only when something goes wrong, is to under-estimate some vital factors in the situation.

The situation at present, of course, is obscured by shortage of labour. There is now next to no unemployment among those who are fit to work at all. We are informed, for instance, that there are actually no deaf persons unemployed unless also incapacitated by age or by some additional infirmity, and it is said that there are no fewer than 340 different occupations which can be followed by the deaf. But it is necessary to envisage a time when normal industrial conditions will return, or perhaps a time of industrial depression and unemployment, when employers will naturally want to select the fit in preference to the unfit for such jobs as are available. Some means must be found for securing that the disabled are not cast on the scrapheap. No doubt much could be done by persuasion and example on the part of Government Departments, local authorities, public utility undertakings, and public-spirited private employers, but this is a national liability, and the voluntary principle will not fill the bill. The Tomlinson Committee has, it seems to us rightly, rejected the idea of subsidies to employers for taking disabled men. The alternative is a statutory obligation on employers to accept a quota of disabled, and the setting up of a register of handicapped persons and a schedule of occupations which will primarily, though not exclusively, be reserved for them. If such occupations as lift attendants and messengers are mentioned, it is because those are the first which come to mind. Actually such a schedule might be indefinitely extended, but to over-extend it, of course, might have grotesque results. Its construction will need the exercise of something like genius, but harder problems have been tackled.

The industries of this country are highly diversified: so are the jobs in each industry, and so are their demands on physical capacity. As has often been said, the loss of a finger may be a barrier to one job, whereas another can be done by a person without arms. But the question of fitness for the job goes much deeper than that. It takes cognizance not only of physical defects and their compensations, but of age, temperament, mentality, and social circumstances. An employer may not be greatly impressed by the figures for the Ford works in America, where 10% of those on the pay roll are physically defective and where it has been proved that cripples can earn full wages; he will be anxious about the accident-proneness of these handicapped people whom he is asked to employ, and about their increased susceptibility to fatigue and likely sickness absenteeism. Another factor to be dealt with may be unwillingness on the part of other workers to work with a disabled person. This is said to operate in the case of persons under treatment for tuberculosis; but the rehabilitation of the tuberculous, as also of heart cases, must be dealt with as a separate problem, not on that ground alone but because they need specially sheltered conditions.

In all these readjustments and adaptations the major problem is a medical or a medico-psychological one. After the "crooked" have been made straight there are innumerable "rough places" which must be made smooth. It is the understanding medical man, especially if he has studied industrial health, who can best assess the usefulness of his patient, advise on his place in industry, and ensure that his restored capacity is used without detriment to himself and to the best advantage in the field of productive effort.

Physical defectives are often unusually conscientious and reliable persons. The consciousness of one defect makes them use their other powers with special care and alertness. On the other hand, there are defectives who lose themselves in self-pity or fall back on the reflection that because of their disability not much is expected of them. Again, there are people who are uncertain of themselves and need the confidence which only the doctor can impart. In addition to the surgical group of disablements, which are more or less obvious, there are disablements in the medical group which are not so obvious and about which the industrial supervisor or foreman needs to be carefully informed. For all these reasons, rehabilitation, which after all is only treatment as the medical profession understands it, should not be split up into a medical and, after that, a non-medical phase in which the patient will be seen no more by the doctor. The medical man, whether surgeon or physician or general practitioner, must be allowed to treat his case to a conclusion, and the conclusion is the re-establishment of the patient as an economic unit to the full extent of his recovered capacity.

DEMOCRATIC MEDICINE

At this particular moment in the history of medicine it is perhaps as well to recall that the foundations of medical science and medical practice have been laid and built upon by men practising their profession freely, restrained only by the authority of their own consciences and by their freely accepted obligations to professional organizations, corporations, and colleges. Those two great English doctors, William Harvey and Thomas Sydenham, the one a royalist and the other a puritan, made their fundamental contributions to physiology and clinical science as freely practising physicians. John Hunter, Edward Jenner, John Snow, Joseph Lister, James Mackenzie, Richard Bright, Thomas Addison—these men brought their great gifts to fruition in a system of medicine which now appears to have more detractors than advocates. The master builder of the public health service—John Simon—was a surgeon at St. Thomas's Hospital, and he made it a condition that he should continue in this post when he accepted the appointment of Medical Officer to the Privy Council. This is not another way of saying, "What is good enough for my grandfather is good enough for me." It is not to say that the changed times in which we live do not demand a new approach, or new approaches, to the many difficulties that beset the practice of the art and the science of medicine. But those who are eager to pull down the existing structure in the illusion that they are going to build something quite new should perhaps be a little clearer in their own minds just what it is they wish to destroy. Tradition is not a meaningless term, and the tradition of freely accepted obligations to their own profession as well as to the public they serve is a powerful binding force among medical men and productive of great good.

Doctors generally have supported the attack made by Sir William Beveridge on want, idleness, squalor, and ignorance. The Atlantic Charter put the attainment of freedom from want and freedom from fear as objectives of world policy. Medical men are common enough witnesses to the disasters to the individual from fear and from want to see in the removal of these an essential step to the attainment of good health. But these are negative freedoms. Freedom to think, freedom to express thought in speech and in writing without the hindrance of authority, are the necessary conditions of all creative and scientific work. It is well, therefore, to take heed of the warning so cogently voiced by Dr. Geoffrey Bourne in an article published in the *Journal* of February 20. There he reminds us that this freedom of expression is denied by the largest and most powerful local authority in this country—the London County Council. No doctor in the service of the L.C.C. can submit for publication a scientific article, or a letter, unless he has the permission of the Chief Medical Officer to the L.C.C. From time to time we receive for publication letters from medical men employed by local authorities in which anonymity is requested on the grounds that criticism—moderately worded and well based—will offend the authority and so hinder the future promotion of the writer. The good work done by local authority medical services—and especially by the L.C.C. in hospital development—is fully recognized. But this petty censorship is something that should not happen in a world of adult men. It is, as Dr. Bourne points out, the working of an autocratic system, seen in another form in the local authority hospital, where the medical superintendent can impose, for example, his own personal whims of treatment upon the medical officers under his charge. This kind of thing kills initiative, undermines the sense of individual responsibility, and encourages sloth of mind.

"It is my nature," wrote Sydenham, "to think where others read; to ask less whether the world agrees with me than whether I agree with the truth; and to hold cheap the rumour and applause of the multitude." No medical man can work freely and productively if he has always to ask whether a medical administrator agrees with him or not. As opposed to the autocratic system Dr. Bourne sets the democratic system of the voluntary hospital. Again it is well to remind critics of the latter that it has been from the big voluntary teaching hospitals of this country that the main stream of medical research has proceeded. Most of the voluntary hospitals are managed medically by committees composed of members of the medical staff, all on a footing of equality. The control is horizontal, not vertical. There is no medical autocrat with power of veto. The spirit of freedom and independence fostered by such a system permeates the teaching hospital and is handed on generation after generation to the medical students that pass through its gates to practise their profession in the outside world. In this week's correspondence columns Dr. Lindsey Batten persuasively describes what this freedom means in the conduct of general practice.

What Dr. Bourne calls "the democratic system of medical service" is, he believes, "entirely compatible with State control"; and a State Medical Service "on a grand scale" he sees as an inevitable consequence of the implementing of the Beveridge plan. That the medical services of this country are in need of reorganization is widely accepted. That this will to some extent restrict the freedom of the individual doctor is recognized. That the State, working through local bodies, is likely to have a greater say in the conduct of medical practice is inevitable, whether on the basis of a whole-time salaried service or not. Whatever system may evolve, the scientific freedom of the individual doctor must be preserved; without this such things as free choice of doctor are meaningless. In the coming negotiations with the Ministry of Health the vocational safeguards laid down in the draft Interim Report of the Medical Planning Commission must be insisted upon. All along the line of any national comprehensive health service the vocational body must direct and control professional matters; the practising clinician must not be subservient to the administrator; in any professional group medical men must work as free equals. "What advantage," wrote Sydenham's great contemporary, Milton, "is it to be a man over it is to be a boy at school, if we have only escaped the ferula to come under the fescue of an Imprimatur, if serious and elaborate writings, as if they were no more than the theme of a grammar-lad under his pedagogue, must not be allowed without the cursory eyes of a temporising licenser?"

PROPAMIDINE

Propamidine, stilbamidine, and pentamidine are diamidine compounds recently introduced for the treatment of trypanosomiasis and other protozoal infections. With a view to determining whether they are likely also to have any useful antibacterial action A. T. Fuller[1] has recently performed simple *in vitro* tests embracing a long series of similar compounds and a wide range of bacterial species, thus affording a general picture of the relationship between structure and capacity to inhibit bacterial growth. Many of these substances are bacteriostatic in very low concentrations, their action being most marked on Gram-positive cocci, rather less pronounced on anaerobic Gram-positive bacilli, and least on Gram-negative bacilli. No curative effect was obtained by systemic administration on infection by *Strep. pyogenes* in mice. It has been considered that propamidine (4 : 4'-diamidinophenoxypropane dihydrochloride) has the most promising characters as an antiseptic, and its investigation from this point of view has reached the stage not only of *ad hoc* experiment but of clinical trial. W. R. Thrower and F. C. O. Valentine[2] have tested its action under various *in vitro* conditions on staphylococci and haemolytic streptococci. It has a powerful bacteriostatic action on both, but measured in terms of minimum inhibitory concentrations is about four times as effective against *Strep. pyogenes as against Staph. aureus*: as judged by the slide-cell method it is nevertheless somewhat superior to sulphathiazole against staphylococci. Blood appears to diminish its action somewhat, and pus markedly so, the concentrations required to kill these cocci in natural pus being much greater than those in broth. On the other hand, phagocytosis is unaffected by concentrations greater still, and in a strength of 0.1% leucocytes are unaffected, while these two species of organism should be destroyed in any medium. It would be interesting to have further laboratory data on other bacterial species, including observations on the rate of disinfection, the degree of interference with it by various types of added material, and some comparison with other antiseptics, such, for example, as the acridines. In due course some attempt will also doubtless be made to determine what is the nature of the action of propamidine on bacteria.

These authors, and those of three succeeding papers, also describe the effects of applying propamidine to infected wounds. It has been used in a concentration of 0.1% in a methyl cellulose base, forming a jelly with which the wound was filled if it formed a cavity; burns and other superficial areas were covered with a thick layer of it, an occlusive dressing of vaseline gauze being applied in either

[1] *Biochem. J.*, 1942, 36, 54.
[2] *Lancet*, 1943, 1, 133.

case. The jelly was usually renewed every two days and the treatment continued for ten days in all. The reports are unanimous in describing striking beneficial effects: wounds which had been suppurating, in some cases for long periods, were cleaned up and began to heal. Of various bacteria concerned, streptococci disappeared most rapidly, staphylococci were less easily eradicated, while *Proteus* and *Ps. pyocyanea* were liable to persist in spite of treatment. There is a striking similarity between these accounts and the description by Mitchell and Buttle[3] of their experiences in treating suppurating wounds with proflavine powder. A direct comparison between the two methods in cases suitable for either would be instructive. Meanwhile it is becoming abundantly clear that the antiseptic treatment even of wounds in which infection is firmly established is feasible provided that the antiseptic itself is reasonably non-toxic, and that it is applied in such a way that its action is enabled to persist for several days. Propamidine has joined a company which already includes the sulphonamides, the acridines, penicillin, and gramicidin, and it may be that each will be found to have its particular indications when more is known about how to use them.

SURGERY OF TENDONS

The problems associated with the physiology, pathology, and surgery of tendons continue to cause controversy. Some of these problems have been settled; for example, most surgeons now agree that in grossly contaminated wounds it is wiser to delay suture of divided tendons until the skin has been healed for several weeks. Very satisfactory results follow the repair of most tendons. Except in the hands of Bunnell and his pupils, however, operations on the divided flexors of the fingers are for the most part disappointing. The reasons for this have been, and perhaps still are, obscure. Recent work in this country may soon demonstrate that failure to restore full flexion has been due partly to inability to reproduce adequately the mechanical circumstances in which the flexor tendons of the fingers normally work. Another factor that may determine the final result is the length of time a tendon should be kept at rest after suture. There is need for a more thorough inquiry into the problem of the rate of healing of tendons in man, for it is on a knowledge of this that an intelligent regime of immobilization and mobilization must be founded. Much experimental work has been done already, and none better than that of Mason and Allen[4] on dogs. They set out to determine the rate at which the healing sutured tendon regains its tensile strength, what effect function has on the process of tendon repair, and what is the "holding power" of the tendon for sutures. Briefly their conclusions are as follows. There are three phases in tendon healing, as measured by its tensile strength: (*a*) that of rapid diminution, which lasts about five days; (*b*) that of increase up to a point reached about the sixteenth day; and (*c*) a second phase of increased strength starting between the nineteenth and twenty-first days and continuing for an undetermined period. Function and motion during the first two phases of healing lead to increased reaction and to separation at the suture line. Restricted use—i.e., active contractions with prevention of stretching by appropriate splinting—allowed at the beginning of the third phase (about the third week following suture) produces only a slight increase in reaction, and leads to a rapid increase in tensile strength of the union. Active *unguarded* use, even after three weeks of immobilization, always causes increased reaction and may result in stretching of the suture line. Tendons kept completely immobilized develop excellent gliding sheaths, while early unrestricted use prevents their formation. The "holding power" of the tendon for the suture shows a marked drop below its original power until the fifth day, when it begins to rise, reaching its immediate sutured strength only after fourteen days. The practical lessons to be learnt from these experiments are that complete immobilization is necessary for about three weeks; that active movements, with appropriate precautions to avoid stretching, from that period onwards consolidate the strength of the sutured tendon; and that the use of excessively strong suture material is futile because the tendon will not hold it against movement during the first seven to fourteen days: and even if it did, early mobilization produces sufficient reaction in and around the sutured tendon to prejudice the final result. Though it cannot be assumed that human tendons would react in every way similarly to those of the dog, the findings of Mason and Allen conform sufficiently closely with clinical observations to make them interesting and significant.

[3] *Lancet*, 1942, **1**, 416; see also this *Journal*, 1943, **1**, 106.
[4] *Ann. Surg.*, 1941, **113**, 424.

CZECHOSLOVAK MEDICAL DEGREES AT OXFORD

The Sheldonian Theatre saw a unique occasion on February 27, when the degree of Medicinae Universae Doctor (Czechoslovakia)—M.U.Dr.—was conferred upon 23 medical students exiled from the Charles University of Prague, the Masaryk University of Brno, and the Komensky University of Bratislava, who had been able to complete their studies in England. The Czechoslovak Government in England had asked the University of Oxford to act as sponsor for these three Czech universities, and with the Vice-Chancellor acting as Rector, the Regius Professor of Medicine as Dean, and the Nuffield Professor of Therapeutics as Promotor, the degrees were conferred in conformity with the legal requirements of the Czechoslovak universities. The students qualified under a special examination conducted by the Examining Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England. As the General Medical Council have agreed that the M.U.Dr. of Czechoslovakia is registrable under the Temporary Registration Orders, the new graduates will be available to assist the war effort here.

Dr. Benes, President of the Czechoslovak Republic, and Madame Benes were present, and among the large and distinguished gathering were Sir Alfred and Lady Webb-Johnson, Sir Adolphe Abrahams, Sir Henry and Lady Tidy, Lord Simon, Mr. Philip Nichols (British Ambassador to Czechoslovakia), and Dr. Labkowitz (Czechoslovak Ambassador to the Court of St. James). The ceremony, and the representative gathering which attended it, bore witness to the close spirit of co-operation existing between the Czechoslovak Government and ourselves; and it seemed particularly fitting that this co-operation should be manifest in so practical a form. The opening of facilities for scientific study among the refugees in these islands is a clear step towards facilitating reconstruction in the occupied countries after the war. Comradeship in scientific work is, moreover, a true foundation on which to build a Europe united within itself and working towards a common end. All but one of the new graduates appeared in battle dress, and their spokesman voiced the sentiments not only of his comrades but of the whole gathering when he said: "We think with sorrow and pride of our fellow students who died on November 17, 1939, and of the thousands of university teachers and students lingering in the concentration camps because of their loyal and faithful belief in the Czechoslovak Republic and its democratic ideals."

NON-FATAL EFFECTS OF EXHAUST-FUME POISONING

BY

F. W. EURICH, M.D.

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In my experience the effects of acute and subacute poisoning by the fumes from defective motor-cars are not well enough known. Judging from the number of cases seen by me these toxic effects cannot be very rare, and they are likely to occur still more often, as in these war days cars have a longer life on the road than formerly. The effects necessarily vary in severity with the concentration of the fumes when inhaled and with the frequency and duration of exposure to them.

Illustrative Cases

Case 1.—The first case of this kind the true nature of which I recognized was that of a young man in his twenties. He had consulted several practitioners, who all told him that they could not find anything wrong and that it was "just a case of nerves." His complaint was that he felt shaky, a little dizzy at times, and his legs were tired. I, too, found nothing definitely wrong. As we sat down to have a talk he asked me: "Do you think that this can throw any light on the trouble? I feel worse after driving my car." Inquiry elicited that the ventilation of his car was defective and exhaust fumes entered it. He received the necessary instructions, but no medicine, and made a perfect recovery.

Case 2.—Some time later I was consulted by a master builder, a man in the thirties and of powerful build. He complained of weakness in his limbs; he could no longer carry his little daughter of 2 years upstairs, while ascending the stairs itself was difficult at times. He also complained of headache, but this distressed him less than did the muscular weakness. His troubles came to a head on his arrival at Cardiff after driving in bad weather from Ilkley. The severity of his complaints had varied somewhat in the preceding 10 weeks. On being questioned he said he thought the weakness was greater after driving to his various undertakings in his little car on a wet day, when he had the windows shut, and he admitted that some fumes entered it. On examination his complexion was healthy, and the only abnormality found was weakness of the knee-jerks. He was advised either to buy a new car or to drive in all weathers with the windows open. All his complaints disappeared in a fortnight.

The more severe effects of such fumes are illustrated by the following cases:

Case 3.—A lady superintendent of the orthopaedic and massage department of a provincial hospital, aged 31, who had always enjoyed good health, complained of headache one Sunday. Next day this became worse and she found that she saw double. At the end of the day a weakness in the lower limbs, which she had noticed earlier, became so great that she needed the help of a companion on her way to the station. She was depressed and easily reduced to tears, quite unlike her usual self. The diplopia, which took place in several directions, could not be explained by the ophthalmic surgeon of the hospital. The ocular defect lasted two months or longer, as did the weakness of the legs. The knee-jerks, faint at first, gradually returned to normal. On inquiry it was found that the room in which she worked was badly overcrowded and ventilated. She therefore worked by an open window, beneath which ambulances and other cars would halt and discharge their fumes. These conditions were altered on resuming her duties, which she was able to do without a return of the trouble. To-day, seven years after her illness, she is in perfect health.

Case 4.—Another case is that of a man in the early sixties who had been taken ill five weeks before I attended him. Tumour of the brain was suspected. When seen by me he was confined to bed; temperature and pulse were normal. The gait was ataxic and there was incoordination of the movements of his upper limbs. Ankle-jerks, knee-jerks, and tendon reflexes of the arm could not be elicited. There was diplopia on looking both to the right and to the left. The pupils were equal and reacted to light and accommodation. The disks were normal. Some dizziness was complained of as well as headache. There was no history of vomiting. Against the likelihood of a brain tumour was the history: the onset of the symptoms was too rapid; after a few hours of headache the disordered movement of legs and arms developed, soon followed by the diplopia. When seen by me the incoordination of the legs had already improved slightly. On further questioning it was elicited that the trouble began on the evening of a day on which he had helped to take voters to the booth. For eight hours he had sat in his car. Asked whether the car was well ventilated, he replied: "It stank like hell." I decided that his trouble was due to fumes, and ventured to give a good prognosis. A month or two later I heard that the patient had made an uninterrupted recovery.

Commentary

These cases differ from other forms of poisoning in that chemical and other tests, including the spectroscope, fail to demonstrate the poison because of the small amount of CO present in the blood. The diagnosis must therefore rest upon other evidence. Clinically it is noteworthy that, except in mild cases such as Case 2, the symptoms appear very rapidly—generally within 24 hours—and that, once developed, they do not tend to increase in severity, nor do new symptoms appear in the course of the illness provided there is no further exposure to the fumes. In some cases the action of the pupils is affected. This, too, comes on very rapidly. Disorder of pupil reaction, together with faintness or actual absence of the knee-jerks, may suggest tabes—a diagnosis which I have known to be made—but the rapidity of onset of these symptoms should caution the observer. Sometimes looseness of the bowels occurs in the beginning. Disorders of micturition I have never observed. In none of my patients was poisoning so intense as to affect consciousness, and this may account for the absence of later complications, such as epilepsy, which I have seen in patients found unconscious from CO poisoning. Patients do not always remember immediately on inquiry that the ventilation of their car is defective, but a leading question on the point has never been necessary. The prognosis is apparently good, though convalescence is often protracted.

MALARIA CONTROL IN INDIA

A paper describing the measures taken for the control of malaria in India was read by Sir RICKARD CHRISTOPHERS, F.R.S., in the India and Burma Section of the Royal Society of Arts on Feb. 5. Sir MALCOLM WATSON presided.

Endemic Malaria

The fundamental problem of Indian malaria, said Sir Rickard Christophers, was the endemic malaria of the rural population, which comprised 90% of the inhabitants of India. This occurred in every part of India, with the exception of the high mountains and such fortunate places as Kashmir, where the elevation ruled out the disease. In general, endemic malaria, following the distribution of the rainfall, was lightest in the north-west, and became heavier in the south and east, where there were extensive hyperendemic tracts. Such a problem would tax the resources of the richest and most developed of countries, and India was neither rich nor well developed in the sense of Western Europe. Nevertheless, something was being done, and there was hope that by the new methods of Paris-greening, as well as by education and co-operative action, amelioration might be achieved, at least in some areas.

One form of endemic malaria might be called "irrigation malaria." It was found in the great canal projects of India, projects which were unrivalled in scale anywhere else in the world. Often insufficient precautions were taken to prevent the slow onset of waterlogging with accompanying malaria, but a great deal of attention had been devoted during the last 35 years to the engineering side of malaria control in these regions. Another point about endemic malaria was that, although pre-eminently a rural problem, it was not always confined to the villages. It was a very marked feature in many of the smaller Indian towns of from 20,000 to 100,000 inhabitants, but here the problem was simpler, because educational and other factors could more readily be brought to bear upon it.

On the subject of quinine as a primary measure directed against endemic malaria, Sir Rickard Christophers said that recent work in the Zanzibar Protectorate had led to the conclusion that what was required was that quinine should be made available in such a way that it could be used whenever required by adult or child to tide over acute sickness. This was also the requisite in India, where the remarkable dispensary system offered a channel for the provision of adequate supplies.

Epidemic Malaria

It was characteristic of endemic malaria that, while children suffered from it, adults, thanks to the immunity which they

had acquired in childhood, suffered but little. To save the children, therefore, entailed a greater risk in respect of the adults, and the same dilemma appeared in a more sinister form in epidemic malaria. Epidemic malaria was the result of low endemicity, and, the children growing up without immunity, when malaria did come it had the effect of an explosion. Roughly, the major epidemics had occurred, as far back at least as 1876, with a sort of cyclical regularity every eight years or so. It was the last of them, in 1908, which led to the summoning of the Imperial Malaria Conference, and its sequel was a scheme for organized research and preventive action against malaria in India. It was then clearly shown that these cataclysmic events were mainly due to the overflowing of rivers and the flooding of great tracts of country, and that they could be controlled by appropriate engineering measures. It was now 35 years since any further major outbreak had occurred. Colonel Gill, who had made a special study of these epidemics in the Punjab, had shown that by collecting suitable data the locality of the threatened areas could be determined in advance, and quinine and other assistance be brought in readiness.

In India, however, there were many other phases of malaria on a more localized and moderate scale, where direct control was more feasible. Among these was the malaria of cities and large towns and of industrial and engineering projects, such as the tea and jute estates, and of Army cantonments. At the Imperial Malaria Conference in 1910 a central and a number of provincial malaria organizations were formed. The function of the central organization, now the Malaria Institute of India, was to collect all relevant information concerning malaria in India, train personnel, and provide assistance and advice wherever required. It had undertaken research and initiated measures of control in almost all parts of India. Two other organizations working in India were the Ross Institute of Tropical Medicine, lately under the direction of Sir Malcolm Watson, and the Rockefeller Foundation, which had for some time carried on research and control, more especially in South India.

Specific Control Measures

In the last part of his paper Sir Rickard Christophers sketched some of the actual measures of control which have been carried out. In Bombay in 1908 it was found that malaria was being actively propagated in parts of the densely packed city by a particular species of anopheles, *A. stephensi*, which established itself in dark household wells in five-story-high Parsee tenements. A malaria survey was made, complete control established, and it soon became scarcely possible to find an unprotected well or cistern. Later the anopheles was found breeding in flooded cellars and in sheets of water on cement in large buildings under construction. Appropriate measures were again taken, and Bombay was now practically malaria-free.

Sir Rickard mentioned that he himself was sent to make an investigation into the prevalence of malaria among the convicts of Port Blair penal settlement in the Andamans, and discovered the role played by *A. ludlowi* (or *A. sundiacus*, as it was now called). The choice of more suitable sites in the healthy country away from shore and the filling in of local salt swamps made a great difference. He referred also to the Sarda canal scheme, a large-scale operation lasting some nine years and carried out in one of the most deadly hyperendemic tracts in India, in which every form of measure, direct and indirect, was used to combat the malaria menace. Other works in which malaria operations under competent malariologists were started from the earliest stages were the reclamation operations at Colaba to the south of Bombay and the construction of the new harbour and its railway at Vizagapatam.

New Delhi offered probably the first instance of the site of a projected capital being determined by a malaria survey. It was first proposed to build this modern city to the north of the existing Delhi, but overwhelming reasons on the basis of a malaria survey were found against this site, and the healthy site to the south was chosen. The speaker finally referred to the work carried out in the tea districts of Assam by the Ross Institute. Its most conspicuous feature had been the large-scale employment of new biological methods of control. One of the special methods was the use of shade plants of selected type to cover in the watercourses and so prevent the breeding of *A. minimus*, by far the most important carrier. Flushing by automatic apparatus was another much-used method.

Sir Rickard Christophers added that it was malaria research which had vitalized everything in connexion with control work, and to eliminate or subordinate research at this stage in order to confine attention to practical results would have a most damaging effect on progress.

Reports of Societies

MEDICO-LEGAL PITFALLS IN OBSTETRICAL AND GYNAECOLOGICAL PRACTICE

A joint meeting of the Medico-Legal Society and the Obstetrical and Gynaecological Section of the Royal Society of Medicine was held on February 19, Dame LOUISE MCILROY presiding, to discuss medico-legal pitfalls in obstetrical and gynaecological practice. Abortion was excluded from the discussion.

Negligence in the Operating Theatre

Judge W. G. EARENGEY, K.C., discussed the legal aspect of responsibility for instruments or swabs left in the body after operation. There was a dearth of reported cases on this subject in English courts. Conformity with the general practice of the profession did not compel a jury to find that there was no negligence; if it did, the profession would be setting up standards inconsistent with the general law, but evidence of general practice carried considerable weight. Nor was failure to conform with the usual methods necessarily evidence of negligence, otherwise the adoption of a new method would be fraught with grave risk for the surgeon. It would be difficult to persuade a jury that an instrument or swab could be left behind without negligence. Exceptional cases might occur, when the patient suddenly developed signs of collapse and in order to save his life must be sewn up before all precautions could be taken, but the burden of proving these facts strictly would rest upon the person alleging them. In James *v.* Dunlop[1] Lord Justice Greer was reported as stating that the duty resting on the theatre sister in this respect did not relieve the surgeon, and Lord Justice Scrutton laid it down that if a surgeon put swabs in a body it was his duty to take them out, and not merely to rely on the count of a skilled person. In Gold *v.* Essex C.C.[2] Lord Greene said that a nurse employed as the servant of a hospital did not cease to be such when placed under a surgeon's orders in the theatre; she was therefore not his servant, and he was not responsible as principal or employer for her negligence.

Special Problems in Obstetrics

Mr. EARDLEY HOLLAND said that there were probably more pitfalls in obstetrics and gynaecology than in any other branch of practice, this branch having so many important, intimate, and delicate implications in social life. He instanced the following problems:

1. Mistakes in diagnosis of pregnancy, especially when first disclosed in operating theatre.
2. Uncertainty about duration of pregnancy, including viability, prematurity, and post-maturity.
3. Definition of "live birth" and "dead birth" and signs thereof.
4. Surgical sterilization, including liability, if any, of the operator should pregnancy occur after operation for sterilization.
5. Consent to operations, especially those depriving a woman of child-bearing capacity.
6. Puerperal infections which could be said to have been favoured by absence of precautions on the part of doctor or hospital.
7. Artificial insemination between husband and wife and the precautions to be taken by the practitioner to safeguard himself and the child.
8. Evidence of virginity in nullity cases, and the deliberate destruction of the chief evidence of virginity by pre-marital hymenectomy (as a routine measure he considered this unjustifiable).

Gynaecological practitioners should keep the fullest clinical notes of all cases, all letters received, and copies of letters written, make a thorough examination of the patient, never take

1 *British Medical Journal*, 1931, 1, 730.
2 1942, 2 King's Bench, 293.

for granted the correctness of a diagnosis made by another doctor or gynaecologist, and never operate on a patient before personally interviewing and examining her. An eminent lawyer had said that more danger lay for the gynaecologist in what he said than in what he did. When a mistake was made and aspersions were cast, the practitioner should be always courteous, frank, tactful, and considerate, rather than take an attitude of righteous indignation and injured innocence; otherwise the tolerant patient might become the vindictive litigant. Some "pitfalls" were crafty devices to entrap the medical man. These generally concerned the termination of an unwanted pregnancy, and the young and unsuspecting gynaecologist was chosen as a victim. In very rare cases a doctor and patient might act in collusion. The doctor would send a request for the curetting of one of his patients for menorrhagia, or the patient might describe fictitious bleeding (he had even known a quantity of bullock's blood to be used to add colour to the deception). It was necessary to be on guard against the abortionist who started the business and left it to others to see it through.

Legal Position of Sterilization

Dr. LETITIA FAIRFIELD said that the legal position of sterilization was fully explored in the decade preceding the war, and had in no way been altered since. Therapeutic sterilization—that is, an operation considered necessary for the patient's life or health—was legal, and the only way in which the gynaecologist could render himself vulnerable was by neglecting to obtain a full and explicit written consent from the patient and, if possible, from her husband. Eugenic sterilization—not necessary for the patient's health, but intended to prevent the propagation of unhealthy offspring—was on more debatable ground. In theory at least the surgeon performing such an operation laid himself open to prosecution under the ancient law of mayhem or under the Offences against the Person Act. But as modern conceptions of the hereditary transmission of disease were unknown, and the operation on the female not contemplated, when those laws were formulated, and as no relevant case had yet been before the courts, it was impossible to say what view a jury would take. All authorities seemed to be agreed that the sterilization of mental defectives with or without their consent or their parents' consent would be illegal.

Another pitfall, that of artificial insemination, was much less familiar, and she thought it had never been discussed from the legal standpoint in this country. The birth of a child by artificial insemination between husband and wife would not deter an action for nullity, but might well render the case more difficult to establish. A very different position was created with the use of alien or donated semen, a practice apparently growing in the United States. Even in the most favourable instances the position of the offspring was rendered dubious, while the practice obviously lent itself to trickery, such as the defrauding of the heir presumptive to title or estates. Two schools of thought had arisen in the medical profession in America. One took the view that the gynaecologist's only aim was the parents' happiness, that he should advise them to sign no document, forget all about it, and be prepared to support the statement by robust perjury if necessary that the child was theirs. But the American Medical Association[3] discouraged this view, realizing that the status of the child might be challenged by interested parties; therefore it advocated very explicit consent documents and legal adoption of the child, though it might be doubted whether any of the precautions would really be of much assistance in establishing the child's status or defeating a conspiracy to defraud.

"Negligence" in Obstetrics

Mr. ALECK BOURNE said that the professional idea of negligence and the layman's idea were different. The medical man knew that failure to apply certain tests or treatment—for example, examination of urine at frequent intervals in late pregnancy—constituted actual neglect of necessary precautions, but the patient did not realize that she had been neglected if the urine was tested once or twice during the whole time of the pregnancy. On the other hand, a patient might regard herself as neglected because no interference was made during the protracted first stage of labour and the child was born dead. Complete note-taking at every ante-natal visit was an important precaution against a later charge of negligence. But the most important of all obligations was that of being present at the actual delivery. If a doctor failed to be present the antecedent reassurance that everything was normal counted for little in the lay mind. One result of failure to be present where there was no automatic gas apparatus was that the woman would be deprived of an anaesthetic, and this occasionally suggested the idea that the doctor was callous and indifferent to suffering, a more serious reflection on his reputation than almost any other.

[3] *J. Amer. med. Ass.*, 1938, 1832.

Preservation of Professional Confidence

Dr. ROBERT FORBES, secretary of the Medical Defence Union, said that there was no field in medicine where more intimate secrets were revealed than in obstetrics and gynaecology. If such matters were learned by practitioners under the seal of confidence, how came it that there should be any need to discuss the difficulties inherent in the preservation of professional secrecy? By whom and in what circumstances was it challenged? The immediate answer was that there were a number of occasions when the rule of professional confidence had to be adjusted to the realities of the moment. As an ideal the observance of confidence was excellent, but occasions arose when modification or adaptation was essential. He believed that the continued existence of the rule of confidence in so high a proportion of cases was due to the waiver of the rule when common sense and natural justice dictated a relaxation. If practitioners were to insist upon its observance upon every occasion no matter who suffered or whose interests were imperilled, it would not be long before the prerogative was lost.

In some further brief discussion Mr. GREEN-ARMYTAGE mentioned the "pitfall" of puerperal sepsis following contact infection in the maternity ward. Dr. WILLIAMS mentioned a hypothetical case in which a couple, having given up the hope of children of their own, consented to the operation of artificial insemination and a child was born. Three or four years later, the difficulty apparently having been overcome, another child was born, and the question arose as to which was the real heir. Judge EARENGEY said that in the case of letters patent for an earldom the heirs were said to be those "of the body," which apparently would rule out the first child. Dame LOUISE MCILROY, speaking on the issue of professional confidence, expressed the view that nothing except a case of very serious crime justified the practitioner divulging anything in court which had been revealed to him by the patient unless the patient gave consent.

Correspondence

Freedom to Practise

SIR,—In his admirable letter (Feb. 13, p. 200) Dr. E. U. MacWilliam writes: "We want, before every other professional consideration, freedom to function as doctors in response to the demands of our patients. . . ."

There must be thousands of practitioners who wish above all to keep that freedom, and hundreds of thousands of citizens who wish us to keep it, yet we and they remain almost silent. I believe this is because, bred up as we have been to freedom and knowing that we have used it worthily, we cannot believe that in this country it will be taken from us. Yet Sir William Beveridge puts at one short remove the question, "Is private practice worth preserving?"; and it is clear that as a direct result of his Social Security Plan it may indeed cease to exist.

The freedom to agree with a patient to be his doctor, to arrange to see him at our house or his bedside, to give him the time his case requires, to give our personal opinion, accepting full responsibility for our advice, to abide by that opinion and see the matter through, to choose, on occasion, the surgeon or consultant we judge to be best suited to his needs, to take our part in consultation and operation, and to remain throughout the man in charge, to have no obligation to disclose any part of our transactions with our patients to anyone, seems to many of us the very essence of good medical practice, and it is in private practice alone that this freedom

exists in full degree. It is for this professional freedom that we renounce such lesser freedoms as the right to be off duty in our own homes, and are content to be, as you have put it, the servants of our patients. It is the consciousness of this freedom in a regimented world that sustains our self-respect and supports us through laborious days and hours, and I am sure it is this same freedom which gives us the respect of so many of our fellow citizens. It is as free individuals, not as members of any organization, that we are consulted and trusted.

We and our patients know that we do, in general, serve them well. We know they do not choose us for the glossiness of our cars, but because they believe us to be good advisers. We know we are not reduced to antiquated futility by the absence of an electrocardiograph from our consulting room or by not being whole-time members of a clinical team. We know we are not deflected from honest practice by greed of gain. We know, in fact, that we are doing a good job, like our fathers before us, and we feel it right that we should be allowed to go on doing it, and our sons after us if they wish.

We are not unaware that circumstances limit these freedoms, sometimes severely, and we know they are sometimes abused. The obvious answer is to loosen the bonds of circumstance and to educate or discipline those who abuse their freedom; but to abolish the freedom, to make good independent practice permanently impossible, must seem to some of us an act of the same order of folly and destructiveness as to eliminate the family because some families are for ever quarrelling and some people are brotherless orphans.

Reformers tell us that many citizens have in fact only one doctor to choose from, that others do not exercise their right of choice, and that many doctors are fettered in their practice by poverty and other circumstances. They state or imply that we seek to defend a freedom which scarcely exists. No practitioner can offer statistical evidence on this point; he can only reply that he and his patients do, to his certain knowledge, fully exercise the freedom they at present enjoy; but in any case there is the world of difference between a freedom existing as a right, though stifled by economic circumstances or human inertia, and a freedom extinguished by legislation.

In a complete, whole-time medical service we should, of course, lose, *as a matter of right*, all the freedoms I have enumerated and many others as well. How many we should exercise under sufferance would depend upon our immediate or more remote superiors in the service, on the Minister in charge, and ultimately on Parliament and the electorate. No one with experience of State service can doubt that they would be substantially curtailed. But that is, perhaps, not the immediate prospect; it is, rather, an all-embracing "panel practice," and it may be argued that the "panel doctor" is still professionally free. He has, indeed, considerable theoretic freedom, though it hangs precariously on existing but mutable terms of service; his clinical notes are not his property, and he is conscious of the presence of a *tertium quid* in all his relations with his patients. But unless he is a philanthropist with a private fortune his power to give his insured patients really good service depends at present upon his having enough private patients to make it economically possible. Private practice, as matters stand, both sets the standard for good panel practice and actually pays for it.

Our private patients are not always good judges of doctors or doctoring, and they sometimes default, but this can be said for them: in general they demand from us the best we can give; by and large they reward us according to what we do or try to do for them; when they have the means they are ready to pay fees which make it possible to do good work, and they very often add their thanks. So far the State as an employer of practitioners does none of these things, and it shows no sign of repentance or intention to reform. Its only standard of excellence is that which produces no complaint; it gives no reward for good work; and it has consistently paid the smallest capitation fee for which the practitioner could be induced to work at all. It never thanks or honours us in any way.

Failing a revolution, spontaneous or enforced by a united profession, in the attitude of the State to general practice, is it not certain that we are heading for a service free for all but of a hopeless mediocrity, a service in which the daily flood of trivialities and the inadequate and grudging pay will stifle good work, repel good men, and drive the unsatisfied patient into the arms of the unqualified practitioner waiting outside? Something perhaps not very common but very good, one of the best manifestations of the art of medicine, one of the most satisfactory of human relationships yet devised, will have been lost to this country, which has especially cherished it; and if the family doctor is indeed, as he is so often called, "the backbone of the profession," then the profession will have caries of the spine.—I am, etc.,

Hampstead. LINDSEY W. BATTEN.

Future of Women in Medicine

SIR,—There has been much recent discussion about post-war planning of medical education and the future of women in the profession of medicine. I believe that this subject needs an entirely fresh outlook. A debased "feminism" is still all too prevalent among women, and is very much in evidence in the medical profession. There is no need for women to pine after men's prerogatives, privileges, and honours. There is no need to clamour for admission to men's hospitals; to be greedily insistent on their "rights" to have the same training, to attend the same hospitals, to hold the same appointments, and to enjoy the same privileges as those open and available for men.

In reaching for the deceptively bright shadow, these ardent, and at times militant, enthusiasts miss the substance. Women are created women; men are created men. Each has its own abilities, possibilities, and obligations. In this age of ours the essential dignity and worth of a womanly woman in her own right and in her own sphere are being forgotten, and forgotten, unhappily, very often by women themselves. This dignity is violated when a woman tries to occupy the sphere which essentially belongs to a man, just as a man's dignity is violated when he tries to occupy the sphere of a woman. Woman was created for the dignity, nobility, and responsibility of wifehood and motherhood. If circumstances or character and vocation demand that a woman should follow some profession or "gainful occupation" before, instead of, or after, marriage, then to maintain the dignity and nobility of womanhood that profession or "gainful occupation" must remain still within a woman's sphere. This principle should be widely recognized in schools, universities, training centres, and employment bureaux.

I maintain that through neglect of these principles the average medical woman to-day is not pulling her full weight in the profession or in the community. Large numbers of the women qualified to-day—and I must count myself among them—have neither the character nor the vocation necessary, and should never have been encouraged by their parents and teachers to "take up" medicine nor permitted to continue to study it. Further, the training that they received was, and is, in many ways unsuitable for medical women.

It is with these thoughts urgently present in my mind that I beg the courtesy of your pages for this letter and the appended suggestions for the reform of medical women's education, knowing that only through your *Journal* will they reach the wide medical public and have the free discussion which the gravity of the subject demands. Finally, I would say that the remarks I make below about the training of medical women in social responsibility could well be applied to the training of medical men. If this had been so in the past we should not now be witnessing the deplorable cynicism and *laisser faire* which enable your *Journal* to publish letters like that by Dr. Lilias M. Blackett Jefferies (Dec. 12, p. 714) and by Dr. Marie Stopes (Jan. 2, p. 30) deploring the wide use of certain contraceptives because, forsooth, of their unreliability. Nor should we have beheld in the years between the two wars the acceptance of the principle of birth control by many local medical officers of health and borough councils and even by the Ministry of Health, nor the widespread acceptance of this principle by medical men and women to-day. This state of affairs is very largely responsible for a terrible and frightening prospect for our nation. In 30 short years—within the lifetime of many of us—we shall see the old age pensioners outnumbering the children in this country, and in 100 years the prospect of the complete extinction of our race (Beveridge Report, pp. 91 and 154).

I suggest the following changes in the education of medical women.

1. Co-education is fundamentally dangerous, especially in a medical school, for the following reasons: (*a*) impairment of concentration and work due to proximity of the sexes; (*b*) lowering of standards, first of modesty and then of morality. These evils can only be avoided in a community with deeply held Christian moral principles. This is unhappily not the rule to-day. Hospitals and medical schools for the training of women should be entirely separate from those for the training of men, both for the reasons given above and because the medical training of men and women should emphasize different aspects of medicine. "Quality not quantity" should be the aim of those in charge of the medical schools for women. To that end, therefore:

2. Let the entrance age for students be raised to 22 years; this will eliminate all, probably, but the best.

3. Let a condition of entrance be three years' training as a nurse in a general hospital. This will not only be a training valuable in itself, but ensure fixity of purpose and confer a mental discipline which is, believe me, highly necessary.

4. Let the aim of the teaching staff be to train medical women, not to teach women to try to be medical men.

5. Let it be accepted that women should administer to women and children only. In the hospitals to which the medical schools are attached male patients should not be admitted, even to the casualty department.

6. The hospitals should be staffed entirely by women. With the cream of women in the medical schools, never fear but that women of the quality of Dr. Garrett Anderson will come again to rule these hospitals.

7. Let the house staff be chosen on the basis of 75% by special house staff examination and 25% by character and qualities obviously useful to the hospital's future.

8. At the schools of medicine and at the hospitals special attention and training should be given to develop a sense of social and public responsibility, and to this end sensible experts, not necessarily medical, should be co-opted to the teaching staff, of the calibre, for example, of Dr. R. D. Lawrence's dietetic Sister. There will then be built up among medical women a tradition of leadership and special excellence in all matters important to the welfare of women, girls, and children.

9. There should be no birth control clinic at the hospitals. A birth control clinic ill becomes any hospital. Contraceptives ought to be especially abhorrent to women. It is more than pitiable that it should be a woman who confesses herself "proud" to have opened the first birth control clinic in this country. Marshal Pétain's plaint, "France has too few sons," might well be ours for England. Medical women should feel this deeply. It is their place and should be their mission to see that there are no more high priestesses of this woeful practice.

10. The qualifying regulations for women should be altered to fit in with these reforms.

Now is the time for every medical woman to think and to take stock of her position in the profession of medicine. Medicine is not for any and every woman; it is for the inspired. the gifted, the special few. This must be realized in choosing the future entrants to a school of medicine for women and in the training of these entrants. Also I cannot emphasize too strongly that medical men must be medical men, and medical women must be medical women, each with its own functions and responsibilities, working together for the common good. Then and only then will the medical woman pull her full weight in the profession and in the community, remembering and being proud of her sex and her special sphere.—I am, etc.,

Stoke Ferry. JANE SCOTT CALDER.

The B.M.A. and the Beveridge Report

SIR,—The difference in wording of the two motions shortly to be placed before the Special Representative Meeting of the B.M.A. and the Special Conference of Representatives of Local Medical and Panel Committees may have some other significance than that the one reads even more placatory than the other. There is evidence of increasing resentment among doctors serving in the Forces at the increasing probability of the abandonment of their ancient privileges as practitioners of medicine in favour of new principles which they themselves have had no opportunity of debating, and which are, for their establishment, conditional upon the magnitude of their personal sacrifices. It is worth recalling, too, that the Minister of Health deprived us of the right to elect members of Local Medical and Panel Committees. These signal facts are a challenge to the right and competence of the special conference to meet and adopt a motion when no mandate has been conferred.

Debatable points of policy and principle are matters different from pseudo-collective attempts to secure any betterment of pre-existing terms and conditions of service. Local Medical and Panel Committees, through their representatives on the Insurance Acts Committee, have failed to achieve a reasonably expected increase in the capitation fee. Very recent political events, however, convince me that the fundamental point at issue is not that panel practitioners must continue to be underpaid, but whether or not there is any representative body with either the power or the ability to negotiate on their behalf. Even the chairman of the I.A.C. has given expression to a feeling of having been "browned off" in suggesting that the whole body of the profession should support the claim of the panel practitioner.

There is a mort of difference between wishful thinking and unthinking wishing. The one is ambitious, the other defeatist. The profession, upon the adoption of the motion I criticize, will succumb in the fight between democracy and the new bureaucracy. Action, if any be needed, must be taken now in no uncertain measure. No faith will be broken if the motion should read: "The profession will oppose any scheme for comprehensive health services unless the character, terms, and conditions of service are predetermined in agreement with the medical profession."—I am, etc.,

MAURICE E. WIGFIELD.

SIR,—There seems to be an impression that the Beveridge report has caught the B.M.A. unprepared: on the contrary, we are very well prepared indeed. The Medical Planning Commission has received the views of all the important bodies and has got very considerable agreement on the broad principles. In addition the discussions in study groups, panel committees, and so on have been of great value.

It is true that the profession has no detailed scheme to offer, but that is not our business. So far everything has worked out most opportunely. The principles are agreed by most of us, and the same principles appear to have the support of the Government (see Sir John Anderson's speech). The Minister of Health is a Liberal, who may be expected to sympathize with the statement put out by his party, which was so acceptable to the profession. And finally the whole matter is to be discussed in a calm atmosphere and is not to be made a party business at a general election.

Great credit is therefore due to the B.M.A., except that I think the hurried calling of meetings all over the country to attempt to persuade us to go back on our decision that the well-to-do should be excluded from the scheme is a most foolish and undignified move. It is always a mistake to give away bargaining counters in advance, and I hope it is not too late to repair this mistake.—I am, etc.,

Hendon, N.W.4. R. W. COCKSHUT.

SIR,—The resolution to be moved at the Representative Meeting of the B.M.A. on March 31 accepts the principle of a comprehensive health service available to all members of the community, with the proviso that people who wish to should be able to obtain medical services from doctors within the scheme by private payment.

At the present time there is a national food service designed to give a fair distribution of essential foods to all members of the community. Those who buy and sell outside the scheme are called "black marketeers," and are open to universal contempt and to legal penalties. Surely, proviso (*b*), in demanding private practice outside a *comprehensive* service, is no more than a demand for an officially recognized "black market." It will be tragic if such a demand receives the approval of a Representative Meeting of the B.M.A.—I am, etc.,

London, N.11. C. M. FLETCHER.

SIR,—While welcoming the recommendation of the Council of the B.M.A. advising co-operation with the Beveridge scheme, I think the provisos they make call for further discussion.

First, it seems surprising that the medical profession should consider whether or not they will co-operate in such a scheme. We repeatedly and rightly state that our first consideration is service to the patient. Since we live in a democracy, Parliament represents both doctors and patients. If, therefore, Parliament decides that the comprehensive medical service should be adopted, it means that the majority of patients or potential patients are in favour of it. There is, I think, no question whether we should, to serve the patient, oppose the scheme. They have asked for it. We can only demand, and justly so, that we be consulted about the organization as it affects our ability to carry out this service in the most efficient manner.

Secondly, the recommendation states that only if the Beveridge scheme is accepted as a whole can we co-operate in putting it into action. Your leading article (Feb. 13, p. 193) rightly points out that the attack on want and idleness is "a public

health measure of the first importance," and doubtless any comprehensive medical service would be far more effective if backed by these other plans for social security. But the expected has happened, and the Government has not accepted the report as a whole. We are surely not going to refuse to take at any rate one step towards a better medical service, although all the public health measures are not as ideal as we could have wished.

Thirdly, for what reasons do we make the proviso about private practice? The only conclusions as I see them are these: (1) We think it will increase efficiency. As one member of the Council put it, State-provided service and private practice would act as a spur to one another. But attention to private patients can only detract from the time and consequently the efficiency which can be given to insured patients, will divide the allegiance of the doctor, and tempt him to give better service to the paying patient. If private practice is spurred on, then insurance practice is forced back. (2) We intend to give better service to paying patients. This has been dealt with by correspondents and leads to the assumption that the new medical service is handing out second-rate treatment. (3) We want to make more money. If this is the case, it is never stated in the discussions. We have every right to demand adequate pay, but do we demand private practice to increase our incomes? If this is so, then it is a poor opponent to put up against those who are striving for the best medical service that can be devised at the present time.—I am, etc.,

Oxford. A. DELISLE BURNS.

SIR,—There is one aspect of the proposed extension of complete medical services to all and sundry which I have not seen mentioned in any of the letters in the *Journal*. The question is, If the whole population is to be more or less "on the panel," how will the present number of doctors be able to attend them? As once a patient, previously private, becomes a "panel" patient his attendances increase greatly.

The general practitioner for years has been overworked with very little time for leisure, and if medical attention is to be popularized by being made available at little cost there will be no limit to the exploitation of the medical profession. What safeguards are we to have against this? I hope our negotiators will bear this very important point in mind. Would any lawyer contract to do all legal work necessary for a client for 9s. 9d. a year if litigation was as common as minor ailments are?

Most general practitioners will agree that panel work is extremely exhausting; that is probably why local B.M.A. meetings are poorly attended: exhaustion of the doctor is the real reason, not apathy, as has been stated. I agree with Dr. A. E. Moore (*Supplement*, Feb. 20, p. 27) that only by a questionary addressed to each individual practitioner can the real wishes of the profession be arrived at. Our negotiators should be instructed to make it quite clear that consideration must be given to the health and welfare of the doctors who are to run the scheme, and that conditions which cause gross overwork such as have been prevalent for many years will not be tolerated.—I am, etc.,

Blackburn. F. E. EDWARDS.

Venereal Diseases

SIR,—In the war against this scourge the Archbishop of Canterbury deplores that only the medical point of view is taken into consideration and that the religious aspect is not in evidence. When we look into the past, how the Church condemned unfortunates who through misfortune and ignorance became victims, is it any wonder that the meddling and self-righteous divines should have been ignored?

In the past 50 years, the time I have been in active practice in many parts of the world among many peoples, I have been disgusted by the utter lack of sympathy of the clergy of the Church, who have done their best not only to wrap themselves up in ignorance and intolerance of the difficulties of life but actively to prevent members of their Church from intelligent inquiry. When the late Lord Roberts over 40 years ago took some active precautions to mitigate disease in India the princes of the Church condemned him as harbouring vice, and demanded withdrawal. When a colleague of mine wrote a strongly worded article about the same time advocating precautions, his appeal was turned down, mainly on religious grounds. Fortunately, science, education, and reason have gone ahead, and people are not influenced by religious and superstitious threats, and divines have had to identify themselves with public opinion as they have had to water down and modify their assertions on religious belief generally.

This is an entirely medical matter and should be treated in a reasonable and common-sense way. Education has been lacking in this direction, and information on the most important human function we possess, its object and control, and in the matter of keeping sexually fit has been mainly obtained through secretive and "smutty" channels. Let us hope that light is at last coming through the darkness, stupidity, and prudery of the past, and that this terrible scourge will be recognized as an ordinary disease. Only on such sensible lines can we hope for success.—I am, etc.,

Southbourne. E. A. CHARTRES.

Scientific Freedom and Social Medicine

SIR,—Dr. Geoffrey Bourne (Feb. 20, p. 227) has vigorously attacked a problem which badly needs ventilation. It is of the utmost importance that in our medical planning we safeguard the professional independence of the experienced clinician, and allow him an effectve voice in the direction of the machine of which he is a part. Salaried medical men are usually too frightened of what might be the personal consequences to say what they feel on this subject. This is itself a serious criticism of the bureaucratic system, but probably an unjustified one. No sensible administrator regards the system under which he works as sacrosanct or will resent views expressed in good faith.—I am, etc.,

ELIOT SLATER.

Treatment of Cerebral Contusion

SIR,—Surg. Capt. Lambert Rogers (Feb. 6, p. 151) persuasively attempts to counter prevailing scepticism (to which the writer has long subscribed: *Brain*, 1932, **55**, 549) regarding the importance of cerebral oedema as a complication of cerebral contusion. There are, indeed, few head centres in this country which approve of the treatment he advises.

With regard to the clinical argument that his cases do better, it should be pointed out that to prove this he should inaugurate an accurate follow-up investigation on lines comparable to those described by Symonds and Russell (*Lancet*, 1943, **1**, 7) and Guttmann (*British Medical Journal*, 1943, **1**, 94).—I am, etc.,

W. RITCHIE RUSSELL,
Major, R.A.M.C.

Haemoglobinometry and Use of the Haematocrit

SIR,—We are glad to read the report to the Traumatic Shock Committee of the M.R.C. (Feb. 20, p. 209) and to note that serious attention is at long last being given in this country to the question of haemoglobin determinations. But the proposal to estimate the Hb concentration from a determination of the cellular iron is certain to lead to confusion. It has been shown by Barkan and confirmed by various workers, including ourselves, that the erythrocytes contain iron which is not in the form of Hb, and we have shown that the proportion of non-Hb cellular iron rises from 7% normal to as much as 40% of the whole in some anaemias.

In such circumstances we think it futile to remove the plasma before determining the total cellular iron. The plasma iron is negligible as an influence on the cellular total, and should be amply sufficient for general purposes to remove the supernatant plasma after centrifugalizing. The plasma remaining in the packed cells was demonstrated by one of us (C. E. J., 1932) to be about 10%, which would influence the total iron by about 1 part in 1,500. It is true that the committee emphasizes that the proposal is only an interim one, but interim methods have a habit of sticking. We consider that gas analysis with the van Slyke apparatus is far the best method of calibration.

We fail to understand the committee's opinion that a knowledge of the Hb of normal men would be desirable. Such information is already available. Many determinations by gas analysis have been done all over the world, and there is fairly good agreement that the male normal is about 15.5 to 16.0 g. %; in this country the only work published is by Jenkins and Don (1933). It was one of the largest gas

analysis determinations ever undertaken in any country, and its results agreed with the rest of the world.

The technical difficulties inherent in photometric methods are well known, but most of them require nothing more than a little common sense. But the difficulty of a permanent standard is serious, and for that reason we think that the flicker Hb-meter, using the Simmance-Abady head (C. E. J., 1930), has much to recommend it. Our experience of it agrees with Stokes's statement that there is better agreement between different observers using a flicker photometer than with any other form of visual photometer.

The committee deserves every encouragement in work which may end 20 years' stagnation, and we will conclude by recording our own opinion as to the ideal method of measurement. We believe that the only satisfactory instrument is the spectrophotometer. It is essentially superior to every form of colorimeter, including the Pulfrich type; there is no trouble with standards—once calibrated its permanency is absolute: its standards are no more than a wave-length and an extinction coefficient. Its cost is very great, but we firmly believe that sooner or later it is bound to be the standard instrument of every laboratory.—We are, etc.,

C. E. JENKINS.
Manchester. M. L. THOMSON.

A Member Resigns

SIR,—I think a considerable amount of the feeling of stultification experienced by members of the B.M.A. is due to two facts. (1) The Council exercises an arbitrary choice as to which resolutions shall be debated at the Annual Representative Meeting. This difficulty could be met either by choosing certain resolutions from each subject by lot or by allowing the A.R.M. to elect three of its members to choose which resolutions shall be debated. (2) We feel that there are a large number of members on the Council who have been there for years, who are automatically re-elected every time, and who are completely out of touch with the feelings of their members. It would be a wholesome reform if any member of the Council who had been on it for 3 years should be ineligible for re-election when his term expired. He would become eligible again one election later.—I am, etc.,

Colchester, M. E. LAMPARD.

*** Many letters on this subject have been received, but limitations of space make it necessary to discontinue this correspondence.—ED., *B.M.J.*

Mitral Systolic Murmurs

SIR,—Dr. William Evans, in his article on mitral systolic murmurs (Jan. 2, p. 8), has certainly put the cat among the pigeons. At first I thought that, after nearly forty years of continuous auscultation of hearts and trying to estimate the significance of abnormal noises, especially while on medical boards, the complete fogging induced in my mind by his article was the result of my own senility, though I was not conscious of any mental deterioration. But now that Dr. C. H. Ross Carmichael (Feb. 6, p. 172) "and several colleagues" also find themselves a little confused I feel happier.

All noises or sounds must be the result of some physical phenomenon: nobody at least can dispute that; and I feel that I am now old enough to demand from the cardiologists something a great deal more definite than I am getting. I do not like to be put off by being told that such-and-such a murmur is "irrelevant" or "innocent" and that its cause does not matter. Again, Dr. Evans states in two consecutive paragraphs in juxtaposition that "when the murmur is decidedly louder in the upright posture it is the innocent kind"; and then, "when a systolic mitral murmur becomes louder in the reclining posture the innocent nature of the murmur can be presumed." In other words, whether it is louder sitting up or lying down it is "innocent." Frankly, that does not make sense to me. By "mitral systolic murmurs" I should understand murmurs heard at the mitral area and caused by lesions of, or in the vicinity of, the mitral valve; so why drag in aortic stenosis and incompetence?

Because, in necropsies, Dr. Evans does not always find enlargement of the left auricle, he forbids us to use the term "mitral incompetence," thereby implying that there is no such thing *per se*, and without mitral stenosis. But a little further down the paragraph he says: "This sign [auricular enlargement] is absent unless some cause other than mitral incompetence is operating," thereby tacitly admitting that mitral incompetence does occur *per se*. Lastly, and to get down to brass tacks, how can a loud or soft organic systolic murmur (granted that it comes under my definite heading of "mitral murmurs") impinging directly on or incorporated with the first sound heard at the mitral area be caused by mitral stenosis? Surely, stenosis or no stenosis, there must be regurgitation of blood back through the mitral orifice. What else could cause the sound we hear? The blood is already in the ventricle before we hear it, the ventricle contracts, and unless the sound is caused by regurgitation back through the valve it must be caused by something else, and is therefore not a mitral murmur. If it *is* caused by back-rush through a damaged valve, then the valve is incompetent; therefore there must be such a thing as "mitral incompetence." You cannot have it both ways.—I am, etc.,

Stowmarket. H. S. GASKELL.

Periodicity of Relapses in Tuberculosis

SIR,—Your reviewer's quotation (Feb. 27, p. 255) from Dr. J. Burns Amberson on the need for promptness in the treatment of new tuberculous lesions if we "wish to accomplish maximum results at the most opportune time" reaffirms a main principle of value in the treatment of most diseases, but one often forgotten, and rarely applied as energetically as possible. Sometimes it can abort attacks, from respiratory catarrhs to cancer recurrences. As applied to relapse cases of tuberculosis its use would be greatly facilitated if there were any means of telling beforehand when any individual patient was in danger of a relapse (as by various methods of blood examination). Relapses have followed influenzal attacks often, but they may also have an intrinsic rhythm.

My recent study of over sixty cases of tuberculosis suggests that there is a cycle of activity in tuberculosis similar to that of the influenza–cancer cycle (Brownlee, 1919-23; Webster, 1938-42). Should this be confirmed by further research, follow-up methods would be facilitated (as, for example, the repeat examinations advised for mass radiography), and the principle of prompt treatment to new signs could be adopted more widely and more accurately.

Most of my personal observations have been in patients with tuberculous glands in the neck (*x*-ray and radium treatments), but a search in hospital reports and in the literature has shown a similar cycle in most types and sites. For example, an acute lung case (T. W., male, aged 36) showed four half-periods: onset 1914, July; worse in November; again in March, 1915; and July; and died in November (Powell and Hartley, *Diseases of Lungs and Pleurae*, 6th ed., 1921, p. 481). A more resistant case to begin with (Mrs. X, aged 29) showed a relapse after influenza at six periods, further exacerbation at one period, and death at the half-period (p. 484). Further studies are in progress. This preliminary note may stimulate others to search their records of relapse patients.—I am, etc.,

London, W.1. J. H. DOUGLAS WEBSTER.

Diphtheria and Diphtheria Carriers

SIR,—Few medical officers of health, one imagines, will fail to agree with the context of the letter by Dr. F. Lawrence Smith (Feb. 6, p. 171), nor with what appear to be his three most important contentions—namely: (1) That as a result of the progress of the national immunization campaign it "is not uncommon" to encounter "throats" where a "positive K.L.B. swab was a coincidence of no pathological importance." (2) That "it is imperative that medical officers of health should carefully investigate every case which is notified as diphtheria." (3) That in the absence of the precautions as indicated in (2), together with a deletion from the medical officer's register of such cases as were found to have been diagnosed on a positive swab but where the "diagnosis was completely at variance with the clinical evidence," the "Registrar-General's returns will continue more and more to give an erroneous impression of the influence, or lack of it, of immunization on diphtheria the disease."

Dr. Lawrence Smith's suggestion that the M.O.H. should on full investigation review and, if necessary, delete from his register notifications of diphtheria which he is satisfied are really diphtheria carriers is probably the best and most obvious in such districts where the M.O.H. has control of the isolation

hospital or hospitals; but many of us whose areas are served by joint hospital boards have no such control. In our cases deletion presumably would follow only upon an agreement between the M.O.H. and the M.O. i/c hospital. In the absence of accepted definitions of "clinical diphtheria" and "diphtheria carrier" it is perhaps not surprising that there should be difficulty in arriving at this agreement.

Let me quote two definitions which do not appear to be very helpful: (*a*) In the Infectious Diseases Regulations (Scotland) a carrier is defined as one who has within himself the germs or other infective virus of an infectious disease, but has no other sign or symptom thereof, and who is certified by the medical officer of health and one other medical practitioner to be a danger to others. (*b*) Ker's *Manual of Fevers* (4th edition, p. 249) under "Types of Faucial Diphtheria" includes: "Those slight throat inflammations which are associated with, and probably due to, the diphtheria bacillus, but which do not present characteristic membrane and can hardly be regarded as clinical diphtheria. Some, indeed, may be merely instances of simple sore throat affecting a 'carrier' of the bacillus."

I suggest that the increased confusion visualized by my colleague can best be avoided by a policy which will be acceptable to the general practitioner, the M.O.H., and the M.O. i/c isolation hospital, and that such a plan should be encouraged by the Ministry of Health by a suggestion or order to the effect that: (1) Practitioners should be encouraged to swab all suspicious throats and to send to hospital all positive K.L.B. carriers. (2) Practitioners should be paid a fee for notification of carriers. (3) Isolation hospitals should undertake a Schick test of atoxic K.L.B.-positive cases as soon as the case is admitted. A Schick-negative result would warrant the elimination of diphtheria diagnosis. (4) Isolation hospitals should ensure the taking of a virulence test of the K.L.B.s. (5) The M.O.H. would be warranted in deleting a diphtheria notification upon evidence deduced from the results of (3) and/or (4), which results should invariably be transmitted to him by the isolation hospital.—I am, etc.,

H. G. DONALD,
Medical Officer of Health.

Bishop Auckland.

War Neuroses

SIR,—I am greatly indebted to you and to Dr. W. Ronald D. Fairbairn for his article "The Nature and Significance of War Neuroses" (Feb. 13, p. 183). That I criticize details does not mean that I am not a whole-hearted supporter of his general thesis.

I cannot find myself in agreement with those who say that "so far as symptomatology is concerned the war neuroses possess no distinctive features differentiating them sharply from the various psychoneurotic and psychotic states which prevail in times of peace." My observation has been that it is precisely in symptomatology that *some* of the neuroses of war do differ from those of peace. I agree that the essential emotional structure is similar in neuroses of war and peace as also in normal and neurotic soldiers or civilians. But as I pointed out in an article you were good enough to publish in the winter of 1939, the circumstances of war, being emotional stimuli of unwonted intensity and suddenness, cause a symptomatology more florid, more extreme, and more essentially abnormal than do the more moderate and more slowly acting circumstances of peacetime life. This difference in degree of symptoms only really becomes obvious when weighed, in each case, against the personality of the patient before breakdown. Thus, in wartime a class of neurosis can be recognized in which the person was previously of good personality and quite without neurotic illness or even (discoverable) neurotic predisposition. These men and women under sufficient strain will break down, and often the symptoms then produced will be of this florid type. It is as though, in wartime, the ratio of "symptoms : personality," instead of being an inverse proportion, becomes at times a direct proportion: the better the personality the greater the symptoms (also the greater the stress required to cause them), whereas in peace it is more often the poorer the personality the greater the symptoms.

A young guardsman in the last war became a sergeant and received the D.C.M. and M.M. before he was 21. A near shell-burst during a severe bombardment rendered him unconscious. He regained consciousness in hospital in London. No physical injury being found, he was regarded as a case of "shell shock." He was invalided and has remained an invalid, a hopeless chronic hysteric. He had an exacerbation of symptoms in September, 1939. An editor of an important news service with an excellent record of health and personality became deluded and paranoid the day before the declaration of war in 1939, as a result of the stress of watching its approach. The whole content of his delusions was intrigue behind the scenes leading to war. A medical man of considerable achievement and good personality, and in a very responsible position, became a case of obsessional neurosis and in a highly aggravated state of obsessional doubt within a few weeks of the outbreak of war.

In the last two cases removal from work and sympathetic and understanding management, without specific treatment, restored health and ability to work in two or three weeks. The doctor was able to carry out a similar responsible job throughout the bombing of London. Of the editor I have not been able to hear, but I fancy he did equally well. Such violent breakdown and such easy cure are practically unknown in peacetime and depend upon the quality of the personality of the individual and the degree of the stress.

To understand neurosis, therefore, in war as in peace, is to understand personality. To do this one must realize that many of the phenomena we refer to as psychopathological are really psychobiological. By that I mean that the process which, in the upgrowing of a child, leads to the development of a healthy independent adult leaves a trail of emotional events and conflicts overcome, to the more difficult of which there may be a regressive return in times of great stress. Nor can regression itself be considered simply as a pathological mechanism. Two of my cases regressed, certainly, but when the significance of this regression was recognized and appropriate help given they were able to return to full adulthood. Had they not been quickly relieved of stress they might well have gone the way of the first case. The regressions that are thus a signal of distress should be recognized by doctors so that the personality may be saved. We must not be afraid of dependence. It is sometimes, in adult life, useful as it was in childhood; but, as in childhood, it must be followed by a phase of wise weaning. The conflict, "infantile dependence" versus "adventuring into adult life," is present in all of us, normal and neurotic. Neurosis is merely a quantitative variation, at most a modification, and not a contradiction, of the normal.

With these and one or two other minor adjustments, one can accept the main thesis of Dr. Fairbairn's account of the nature of war neurosis. It is, after all, as he says, a psychopathology which is applicable to peacetime neurosis no less than to the neurosis of war. That these general ideas were the guiding principles of a large number of workers in this field before the war does not, however, appear from Dr. Fairbairn's article. The names of the Sutties—the late Dr. Ian Suttie and Dr. Jane Suttie—are particularly linked with the development of psychopathological ideas along this line; and those who are interested by the excellent article may like to read further in Dr. Ian Suttie's book, *The Origins of Love and Hate*.

—I am, etc.,

GEORGE PEGGE.

Cardiff.

"Calorie Control" Diabetic Diet

SIR,—Dr. R. D. Lawrence (Feb. 20, p. 234) thinks the basal principle of my diet untrue and dangerous and considers it as no argument for the new diet to claim that 528 patients have done well on it. Against such *ex cathedra* declarations argument is unavailing. The test of the "calorie control" diet is its usefulness in the control of diabetes. In my hands it has proved highly useful, and I hope that it may also prove useful in the hands of others.

Several questions have been asked about the treatment of in-patients. The following report is of one of the eight in-patients discussed in my article.

A girl aged 18 has been in the hospital repeatedly in diabetic or hypoglycaemic coma. On one occasion when she was admitted in ketosis her abdomen was opened on account of severe abdominal pain and a swelling which was thought to be a subphrenic abscess. A greatly enlarged liver was found and the abdomen was closed. The swelling disappeared after she had been stabilized. Subsequently she was admitted to Oldchurch Hospital in ketosis on Dec. 6, 1941. It was impossible to stabilize her on a normal fixed diet (No. 1 below) with protamine-zinc-insulin, and she was finally given 36 units of soluble insulin three times a day. She had a slight reaction at midday on the day before the following experiment was carried out:

She was given the following diets alternately:

Diet 1.	Carbohydrate 220 g.	Protein 68 g.	Fat 57 g.
Diet 2.	„ 389 g.	„ 26 g.	„ 6 g.
Diet 3.	„ 138 g.	„ 102 g.	„ 84 g.

The food was fairly evenly distributed between four meals at 8 a.m., 12 p.m., 3.30 p.m., and 6.30 p.m.

The blood sugar estimated at 2-hourly intervals was as follows:

	Diet	1	2	3	2	3	1
7.30 a.m.	..	.4	.125	.21	.31	.29	.15
9 a.m.	..	.36	.44	.31	.21	.25	.31
11 a.m.	..	.18	.11	24	.08	.105	.12
1 p.m.	..	.13	.125	.13	.17	.07	.1
3 p.m.	..	.125	.1	.15	.07	.08	.25
5 p.m.	..	.25	.2	.09	.125	.11	.57
7 p.m.	..	.2	.12	.11	.12	.1	.2

This girl had no reactions during the experiment, but she is one of the most unstable diabetics I have met. Since discharge she has been on a "calorie control" diet. She has attended the clinic regularly and has not had to be readmitted, because she has been comparatively stable ever since.

This and the seven other in-patients discussed in my paper convinced me that all types of diabetes requiring insulin could be controlled on the new diet. Since then more than 200 in-patients have been treated on weighed "calorie control" diets.—I am, etc.,

London, E.1. A. C. CROOKE.

Anaesthesia for Laryngofissure

SIR,—I am in some agreement with Mr. Lionel Colledge (Feb. 20, p. 230) in his criticism of Dr. C. B. Lewis's method of anaesthesia with regard to the use of morphine and of the inflatable laryngeal cuff, as the first is apt to be dangerous and the second unnecessary. I am, however, in total disagreement with him when he claims that temporary tracheotomy is necessary, and that the operation under intratracheal anaesthesia is a perilous procedure. I yield to none in my admiration for the late Sir StClair Thomson and the pioneer work that he did for laryngology in general and for this operation in particular. His method, however, was certainly perfected before the days of modern anaesthesia.

I myself have not employed a temporary tracheotomy for the past twelve years. I find that intratracheal anaesthesia gives a smooth and even anaesthesia free from anxiety, and the tube lying in the interarytenoid fold is not in the way of the operation. As the growth is almost invariably situated in the anterior part of the larynx (it would scarcely be suitable for laryngofissure if it were not so), it does not really require any unusual dexterity to slip the catheter, at the moment of inspiration, along the posterior commissure. After the larynx is opened, the trachea is packed off with gauze so that no blood or secretion can possibly enter it. A suction tube may be useful but is not essential. At the end of the operation, after the larynx is closed, the catheter is withdrawn and the patient breathes comfortably *per vias naturales*.

Mr. Colledge is, I think, in some slight error with regard to Hahn's tube. This was never meant to be used in the larynx. It was designed for the trachea, and the inflatable part when blown up was supposed to prevent blood passing it. It was abandoned when it was found that gauze packing inserted into the trachea from the larynx was more effective. I might add that the leading American laryngeal surgeons gave up the use of a temporary tracheotomy many years ago.—I am, etc.,

London, W.1. WALTER HOWARTH.

The Outbreak of Small-pox in Glasgow

SIR,—I beg to refer to the article by Dr. C. Killick Millard on the outbreak of small-pox in Glasgow (March 6, p. 288), in which he criticizes me for adopting an immediate policy of mass vaccination instead of putting my faith in the vaccination of contacts of cases as they occurred and otherwise trusting to luck. This criticism has received considerable prominence in the local press here.

Glasgow has had bitter experiences of severe and lingering epidemics of small-pox. Dr. Killick Millard quotes the considerable outbreak in 1903 which occurred in Leicester. At that time small-pox was occurring in Scotland, mainly in Glasgow, in successive waves of considerable dimensions from 1900 to 1904; again in 1920 an outbreak of small-pox involving over 500 cases lasted from February till November.

I know of no other way of dealing with small-pox abroad in the community except by adopting a policy of widespread vaccination at the very outset. When small-pox makes its appearance, what is the problem facing the medical officer of health? His first duty is to secure the vaccination of all possible contacts. This was done in Glasgow as a routine on an intensive scale, involving the inhabitants living near the patients over a wide area, children at the schools where child patients had been attending, work places where adults had been employed, and all other possible contacts—all with the object of placing a wide cordon of protected persons round each focus of infection. The second duty of a medical officer of health is to ask himself whether these measures are likely to be sufficient. In the case of the Glasgow outbreak I came to the conclusion that the additional precaution of mass vaccination was necessary for three main reasons: (1) The first cases in the city were widely scattered and unrelated; (2) I have a wholesome respect for the capacity of small-pox to strike at a distance; (3) it would have been wrong to postpone general vaccination until small-pox had obtained a firm hold on the city. I wonder what steps Dr. Killick Millard would have decided to take in face of the threatening situation on June 28 last, when it was apparent that small-pox had appeared in the city, affecting children and adults alike, without any source or sources that could be traced. The only difference between the administration of the recent outbreak and previous ones was that a policy of general vaccination at the very outset was adopted and pressed, a measure fully justified by the results.—I am, etc.,

Glasgow. A. S. M. MACGREGOR.

CO_2 Absorption Technique

SIR,—Dr. E. Y. Slaughter (Feb. 20, p. 232) enumerates some of the advantages of the CO_2 absorption technique, and concludes with the words, "The saving of gas is, of course, offset by the cost of the machine and soda-lime." This statement is so much at variance with practical experience that I have worked out the running costs of N_2O–O_2 anaesthesia with the old partial rebreathing technique and with CO_2 absorption.

Most types of continuous-flow apparatus have a "critical flow" of from 5 to 6 litres per minute mixed gases. This flow must be maintained or exceeded in order to keep the CO_2 concentration within reasonable limits. Assuming that the machine on the average delivers 5 litres a minute N_2O and 1 litre O_2, it will consume about 66 gallons per hour N_2O and 13 of O_2. A closed-circuit apparatus, on the other hand (taking Dr. Slaughter's own figures), will use about 500 c.cm. per minute N_2O and 250 c.cm. O_2, or 6.6 gallons N_2O per hour and 3.3 gallons O_2. The saving in gases by using the latter type of apparatus will, therefore, be 59.4 gallons N_2O and 9.7 gallons O_2 per hour.

If the two machines are in use for an average period of 5 hours on 300 days of the year, the saving by the closed-circuit apparatus will be 89,100 gallons of N_2O costing about £215 and 14,550 gallons O_2 costing £14. The total saving per machine per year will therefore be £229 less £25 for soda-lime (1 lb. at 1s. 8d. lasting about 5 hours), equalling £204. If the cost of adapting existing apparatus is £25, this would be paid off in under two months' use. I have not taken into consideration the lessened quantities of ether, trichlorethylene, or other adjuvants when used with the closed-circuit technique, nor the saving in labour and storage space by employing fewer and smaller gas cylinders. If a medium-sized hospital employing three old-type gas–oxygen machines changed over to the CO_2 absorption technique, the annual saving should be over £600, a figure which few lay committees would regard as negligible.

The calculations have been based on wholesale or "hospital" prices. The private anaesthetist enjoys a greater saving in running cost per hour owing to the higher prices he has to pay for gases. It would therefore appear to be incontestable that, on economic grounds alone, the closed-circuit technique marks a considerable advance in anaesthesia.—I am, etc.,

St. Albans, Herts. C. LANGTON HEWER.

Desert Sores

SIR,—The article by Capt. H. M. Rapport (July 25, 1942, p. 96) is of the greatest interest to all serving with M.E.F. The fact that Capt. Rapport makes no mention of the simple treatment that I have found effective in a large number of cases is the excuse for this unavoidably belated letter.

My experience has been mainly with British and African troops. I have had no opportunity for bacteriological examination of my cases, but in my opinion, judging from the appearance and course of "desert sores," the condition is generally a streptococcal infection. It is not confined to troops serving in the desert. There was an enormous incidence during the mountain warfare of the Italian East African campaign. I feel

that some such term as "tropical service ecthyma" is better descriptive of the condition than "desert sore."

I have been unable to convince myself that dietetic insufficiency plays any great part in the causation of the disease. I have seen it widespread in troops on an adequate ration of fresh meat, green vegetables, and fruit. Nor have I been able to demonstrate an increase in the healing rate following the addition of ascorbic acid to the diet. I consider that there are three main factors in the aetiology of "desert sores": (1) Increased liability to trauma under Service conditions and when wearing tropical uniform; under trauma must certainly be included insect bites. (2) Lack of proper facilities for personal hygiene. (3) Flies, which probably act both as vectors of infection and as irritants to slight breaches of the skin surface.

Rest is of primary importance in treatment. This is perhaps exemplified by Capt. Rapport's fourth case. In my cases I try to secure local rest and protection by the use of elastoplast. The ulcers and surroundings are gently cleaned. Bleeding from the ulcers should be avoided. The adjacent skin is thoroughly dried. The ulcer is completely occluded with overlapping strips of elastoplast, each about 1/2 inch wide. I find the elastoplast adheres more firmly if so applied, and it also more adequately prevents the penetration of sand under the strapping. A bandage is applied over the strapping to render it more secure, and the patient is told to report back in five days, or earlier if the strapping does not remain firm. After five days I usually remove the strapping, gently clean the ulcer site, and repeat the elastoplast and instructions. In cases in which the strapping is still firmly fixed after this period it is not necessary to remove it. In most cases the ulcer is granulating healthily after the first application, and in a majority is well healed after three applications.

I have combined this treatment with powdering the ulcer with sulphanilamide, but I do not think this measure greatly quickens healing. I have treated a number of cases by powdering with sulphanilamide, covering with vaseline gauze, and bandaging. My results have been good, but apart from the discomfort of the bandage the method demands the inconvenience of a daily dressing. To my mind it is most important to avoid trauma to the ulcer. This is the reason for the vaseline gauze. Lotion dressings, unless they can be changed so frequently as to prevent drying and sticking, are to be deprecated. When dry their changing is inseparable from trauma and pain.

Apart from its successful results in my hands, the main advantages of the treatment are its comfort to the patient, its simplicity, and its economy of time. In all save very bad cases a patient under elastoplast treatment can take his position in the line and has not to attend sick parade daily or oftener. A dressing applied with bandages is uncomfortable and hampering at the best of times, and is especially so under active service conditions. In addition, I am convinced that the constant friction of a bandaged dressing exacerbates the condition of the ulcer. The bandage I use over elastoplast cannot cause friction, and it can be easily readjusted by the patient himself as often as necessary.

That some degree of immunity often follows streptococcal infections of the skin is a familiar phenomenon. I think the same may be said of "desert sore." In my experience the man who has recovered from an attack of "desert sores" is much less susceptible to the disease than a newcomer. As a footnote I would add that it is as well to consider the possibility in African troops of an old syphilitic taint in the case of persistent lesions.—I am, etc.,

HENRY RICHARDS.

Any Questions?

SIR,—Hearty congratulations on your new section "Any Questions"; may it grow in size as you suggest it will. I am sure all general practitioners will appreciate this type of thing. In your article introducing this section you sympathize with the "tired doctor faced with the toil of reading an article three or four pages long when what he really wants to know is how to get rid of that troublesome pain complained of by Mrs. X," but that statement is rather vague. He would not perhaps mind reading an article—however tired he may be—if it were of real interest to him. He certainly will not sit down and digest—or endeavour to do so—a long article (complete with statistics) showing the incidence of some rare and obscure disease, or the value of some ? vitamin on debilitated rats in the Far East, this latter presented with expensively produced photomicrographs! I am not minimizing the value of these articles, but surely they belong to the more specialized literature which the busy G.P. has not the time or perhaps the inclination to peruse. As you rightly point out, it is the everyday things of general practice—e.g., the treatment of chilblains, rheumatism, etc.—on which he requires brief but useful and guiding information on up-to-date methods. I am looking forward to this new section with great pleasure.—I am, etc.,

T. ASTLEY COOPER.

Obituary

R. H. JOCELYN SWAN, O.B.E., F.R.C.S.

We regret to announce the death on March 2, at the age of 66, of Mr. Jocelyn Swan, consulting surgeon to the Royal Cancer Hospital. The son of a medical man, Russell Henry Jocelyn Swan was educated at Wilson's School and Guy's Hospital. He took the M.B., B.S. of London University in 1898, gaining first-class honours in medicine. Four years later he took both the M.S. of London University and the F.R.C.S. At Guy's he was demonstrator in anatomy and biology, and held the post of house-surgeon and resident obstetric officer. He was also house surgical officer to St. Peter's Hospital for Stone, a post which determined the specialty which he pursued so successfully. He wrote numerous papers on diseases of the kidney, and contributed articles on genito-urinary diseases to French's *Index of Differential Diagnosis*. Swan was consulting surgeon to St. Paul's Hospital for Genito-Urinary Diseases, was on the editorial committee of the *British Journal of Urology*, and at one time was president of the Section of Urology of the Royal Society of Medicine. His other main interest was in cancer, and he was surgical registrar, assistant surgeon, surgeon, and emeritus surgeon successively to the Royal Cancer Hospital in Fulham Road. He published articles on such matters as sarcoma of the tongue, carcinoma of the breast, and tumours of the urinary tract. Mr. Swan served on the Grand Council of the British Empire Cancer Campaign. In the last war he was a temporary major in the R.A.M.C., and was mentioned in dispatches. He was surgeon to the Royal Herbert Hospital, Woolwich, and also to the American Red Cross Hospital for Officers. When the present war broke out he gave up private practice and took up duty as divisional surgeon at the E.M.S. hospital at Park Prewett, Basingstoke.

A colleague writes: Jocelyn Swan was a surgeon of first-class ability in many different "lines." Best known for his renal and all-round genito-urinary work—in which he was far more than merely a fine operator, but was most careful and thorough in investigation as well as of excellent judgment—he was also in the front rank in many other branches, as those who attended the practice of the Cancer Hospital knew very well. His operations for cancer of the breast were models of the best and most thorough technique of the times, and his gastric work was equally good. He knew when not to operate, which is one of the marks of a real surgeon, and his calm air of decision and invariable gentleness and courtesy in handling every type of patient always gained the confidence of those he was treating. In his day at Guy's (where he would surely have been a great acquisition to the staff) he had been a notably elusive rugger half-back, worthy of the best Guy's tradition; and he was also a pretty good golfer and more than average at lawn tennis. He had his share of adverse fortune: he lost his first wife by a very rare form of malignant disease not even mentioned in textbooks; and when he married again his second wife was stricken on their honeymoon with a serious disease which nearly cost her life and left her a paralysed invalid for many months.

C. H. CATTLE, M.D., F.R.C.P.

Consulting Physician, General Hospital, Nottingham

By the death of Dr. C. H. Cattle on Feb. 9, at the age of 87, Nottingham lost its oldest medical practitioner and a link with the latter half of the Victorian era. The son of a Wesleyan clergyman, Charles Henry Cattle was educated at a Wesleyan

college and began his medical education at the Leeds Medical School, afterwards incorporated in the Leeds University. It was here that he became acquainted with Sir Clifford Allbutt, and a friendship arose which lasted throughout their lives. Cattle took his M.R.C.S.Eng. in 1876 and soon afterwards graduated M.B.Lond., proceeding M.D. in 1880. He was in general practice in Nottingham for some years, and was greatly helped at that time by Dr. W. H. Ransom, F.R.S., who was then senior physician at the General Hospital. He went on to obtain his M.R.C.P., and in 1908 he was elected a Fellow of that College. In 1901 he was appointed hon. assistant physician to the General Hospital, Nottingham, and he then became a consulting physician, which had always been his ambition and intention. He followed as full physician in 1906, and he was also physician to the Ransom Sanatorium for Tuberculosis. The whole of his professional life was spent in Nottingham, where he soon gained a high place in the esteem of his fellows, and also a large consulting practice.

Cattle made many contributions to medical literature, especially on affections of the heart and lungs. He took an active part in the discussions of the Nottingham Medico-Chirurgical Society, of which he was secretary for many years and, later on, president. Deeply interested in the affairs of his profession, he was a member of the B.M.A. for 63 years. A keen cyclist, he wandered over the greater part of England, Wales, and Scotland on a pedal machine, which he rode up to the age of 74. He was also a great walker, and kept this up till nearly the end. His library was well stocked with medical and general literature, as was only to be expected from one who read so extensively and found such solace in the best books. He had a retiring, kind, simple, and sympathetic nature, and no desire for publicity. His religion meant much to him. The high esteem and affection in which he was held was manifested by the large number, including many colleagues, who attended the memorial service.

JOHN LIONEL STRETTON, M.R.C.S., J.P.

We regret to announce the death at the age of 82 on Feb. 14 after a few days' illness of Dr. J. L. Stretton, honorary consulting surgeon to the Kidderminster and District General Hospital. Born at Kidderminster in 1860, John Lionel Stretton received his medical education at St. Bartholomew's Hospital, and qualified M.R.C.S. in 1881. In the following year he took the L.R.C.P. and the L.S.A. He was appointed assistant anaesthetist at St. Bartholomew's and was to have been resident gynaecologist and house-surgeon, but he returned home to join his father's practice. In 1882 he succeeded his father as an honorary surgeon to the Kidderminster Hospital and was an active member of the staff for 56 years. When he resigned at the end of 1938 he accepted the position of honorary consulting surgeon. He was president of the hospital from 1924 to 1937. His professional ability and administrative skill were of incalculable value to the hospital, and his work for it was a dominating factor in his life. His method of sterilizing the skin with iodine was described in the *Journal* in 1909 and 1910 and afterwards generally adopted. The most remarkable of his pathological specimens were exhibited before the war in the Wellcome Museum in London, where they are now in safe keeping. In 1936 Mr. Stretton gave his private nursing-home, with its equipment, to the hospital, to be used for paying patients.

He was a Justice of the Peace, and other offices he held included that of chairman of the Worcestershire Division of the B.M.A. in 1911, 1912, 1916, and 1920, and president of the Worcestershire and Herefordshire Branch (1914); chairman of the Local Medical Committee for the County of Worcester (1914-18); chairman of the Local Medical War Committee for the Worcester and Bromsgrove area (1939-42); chairman of the County of Worcester Local Medical and Panel Committee (1912-42); and president of the Kidderminster Medical Society. A man of sound judgment and strong views, he was inflexible in upholding what he considered right. His guiding principles were self-sacrificing devotion and unswerving loyalty to his ideals, his profession, and his friends. He leaves a widow, two sons, and a daughter; the younger son, John W. Stretton, F.R.C.S., is senior honorary surgeon to the Kidderminster Hospital, and thus represents the third generation of his family on the staff.

Dr. H. NEVILLE CROWE writes: I knew of Dr. Lionel Stretton before I started in practice in 1909, and got to know him personally when I became honorary secretary of the Worcester Division of the B.M.A. in 1909; I was instrumental in securing his appointment as chairman of the Division in 1911 and 1912, at the time the Insurance Act came into force. I was impressed with his grasp of the business and his conduct of many difficult meetings. He was chairman of many meetings of which I was a member after this, and I got to know his true worth. Later I was appointed radiologist to the Kidderminster General Hospital and came to appreciate his professional skill more fully. He lived for his hospital and was an example to all his colleagues. He was beloved by all his patients and by all who worked with him for his sterling qualities, his devotion to duty, and his straightforwardness.

Dr. U. W. N. MILES sends the following appreciation: When I first knew Dr. J. L. Stretton, in 1897, he was engaged in the extensive country practice which he inherited from his father. He was even then recognized as the leading member of the profession in this part of Worcestershire, and we general practitioners turned to him for help in all our difficulties—medical, surgical, and obstetrical—and he never failed to give us prompt and skilful assistance. This experience gave him a very broad outlook when, later, he devoted himself entirely to surgical work, and made him a valuable chairman of the various professional societies over which he presided. For twenty years, from 1916, I had the privilege of acting as his anaesthetist and can bear witness to his great skill as a surgeon. He was a man of tireless energy, who never got flurried in any emergency, and who was always considerate and courteous to his assistants and nurses. He was a true friend and adviser to all younger members of the profession in this district in many things beside their professional difficulties. He was spoken of as "Father" in his hospital and well deserved that tribute of respect and affection, not only from his nursing staff but from all his professional colleagues.

G. B. DIXON, M.R.C.S., L.R.C.P.

The death of Dr. G. B. Dixon has removed one of the most distinguished of the now diminishing band of men who took up duty as tuberculosis officers on the initiation of the N.H.I. Act just over thirty years ago. Godfrey Brookes Dixon was a Cumbrian by birth, and received his medical education at Charing Cross Hospital, where as a student he won the gold medal in medicine. Under the influence of Dr. Mitchell Bruce, to whom he was house-physician, his interest was directed to tuberculosis early in his career, and soon after qualifying in 1901 he spent the best part of two years at Davos in Switzerland studying the treatment of tuberculous patients there. He then became assistant medical officer and later superintendent of the Walton Infirmary, Liverpool, where he was one of the first to institute the open-air treatment of patients suffering from pulmonary tuberculosis in a Poor Law infirmary. Later he was for a time assistant medical officer at the Vale of Clwyd Sanatorium. Subsequently he spent five years in general practice as assistant to his cousin, Dr. J. H. Salter of Tolleshunt D'Arcy in Essex. The turning point in his career came in 1910, when, at the age of 33, having had to retire from general practice following an attack of pneumonia, he was appointed medical superintendent of the Birmingham Municipal Sanatorium at Yardley Road, then on the outskirts of the city. In 1912 he intended to apply for the post of superintendent of the Brompton Hospital Sanatorium at Frimley, but was dissuaded from doing so by Dr. John Robertson, medical officer of health for Birmingham, who recognized his great ability and insisted on retaining his services as tuberculosis officer for Birmingham. From small beginnings the tuberculosis service of the city became built up around his person and under his guidance, and for thirty years he performed the double duty of superintendent of a sanatorium of over 300 beds and chief tuberculosis officer to a city of 1,000,000 population with the supervision of three other sanatoria.

Dixon was one of those rare individuals who are both good clinicians and sound administrators. In all he did he was extremely painstaking. He possessed a real flair for organization, no detail being too small to escape him. Though never averse from new ideas he liked first to assure himself

that they were sound. His advice on administrative problems was frequently sought by tuberculosis officers and medical officers of health of other localities as well as by the Ministry of Health. In later years it gave him much gratification to be elected to serve on the Council of the National Association for the Prevention of Tuberculosis and on the Joint Tuberculosis Council, and he took great interest in this work. The best tribute to his reputation as a tuberculosis physician among the medical profession in Birmingham is to be found in the fact that he was repeatedly consulted by medical men on behalf of themselves and their families. He had a high sense of duty and never spared himself in doing what his conscience dictated; no community could have had a more faithful public servant. Though always a stubborn fighter for what he believed to be right, he was an extremely sensitive man, and was apt to feel acutely things that might not have affected one less sensitive. He was a man of outstanding personality, and his passing leaves a gap that will be hard to fill.

J. R. T.

Dr. JAMES BRAILSFORD writes: Tuberculosis officers when first appointed had no easy task to establish their position. G. B. Dixon was one of the first to be appointed, and his triumph over the many difficulties which I know to have been put in his path redounds to his credit. The care, patience, and skill which he brought to bear during the thorough clinical and scientific investigation of the patients referred to him enhanced his prestige with his colleagues and brought him the good will of his many patients. He was able to assess the value of diagnostic and therapeutic procedures, and applied them accordingly. He commanded respect from all with whom he was associated, and was ready at all times to give help to all that sought it.

We regret to announce the death on Feb. 7 of Dr. JOHN STEWART of Crosshill, Glasgow. He was born at Lochgilphead, Argyllshire, in 1862, and educated at the Highland Memorial School, Glasgow, and at Glasgow University, where he graduated M.B., C.M. (with commendation) in 1886, proceeding M.D. in 1891. In 1932 he was elected a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow. Dr. Stewart practised in the south side of Glasgow for over 50 years, and was a member of the Local Panel Committee. He had also been president of the Glasgow Southern Medical Society. He took a keen interest in the Victoria Infirmary, of which he was a governor for 30 years. Dr. Stewart had been a member of the B.M.A. since 1894, and represented his constituency at the Annual Representative Meeting held at Leicester in 1905.

We regret to record the death recently of Dr. GEORGE BRUCE PEARSON of Buckingham, at the age of 72. Educated at Guy's Hospital he qualified in 1901, and after a short period as an assistant at Retford he went to Buckingham, where he continued to practise until his death. Throughout these years he was prominent in the life of the town. He was medical officer to the Buckingham Guardians Union, to the Fire Brigade, and to the Police. As medical officer of health to the rural district he took special interest in helping to maintain a clean milk supply and in the arrangements for main water supply to surrounding villages. For a number of years he was divisional surgeon to the St. John Ambulance Association, and was especially proud of the fact that during this time his women's team won the Perrott Shield in two successive years. For 30 years he was an enthusiastic chairman of the local cricket club. He had been a member of the British Medical Association since 1903, and was chairman of the Buckingham Division in 1926–7. An original member of the Bucks Local Medical and Panel Committee, he attended their meetings regularly and took the chair on many occasions. During the last war he served with the Royal Bucks Hussars in Gallipoli, where he was wounded, and later in Palestine and Egypt. As a general practitioner of the best type and as a genial host he will be missed by his patients and his friends.

A colleague writes: Many will think of him not merely as their doctor but above all as their friend, for he was a faithful friend. With a hatred of sham and pretence, he could be disconcerting in the plainness of his speaking and opinion, which he never concealed from anyone. Probably his directness and plain speaking concealed his genuine kindness of heart from some who did not understand it. But no one who was in real trouble or anxiety ever went to him in vain, for he treated all alike. To the poorest of his patients he was the same as to the richest; they were all of them important for all of them needed his help.

Medical Notes in Parliament

Scottish Medical Advisory Committee

Replying to Commander Galbraith on Feb. 16 Mr. JOHNSTON said that by long-established practice the Department of Health for Scotland had from time to time sought outside expert advice upon special medical problems. He found in the profession a general desire for a regularly constituted committee to advise the Department on the many problems with a wide medical interest which confronted the country. He had therefore set up a medical advisory committee whose terms of reference were "to advise on the medical aspects of problems relating to the health of the people." Its members were: Sir John Fraser (chairman), Prof. E. P. Cathcart, Dr. G. Matthew Fyfe, Dr. Catherine Harrower, Prof. James Hendry, Col. T. D. Inch, M.D., Dr. D. Dale Logan, Sir Alexander Macgregor, Dr. E. K. MacKenzie, Dr. A. F. Wilkie Millar, Dr. R. Richards, Sir John Orr, Prof. A. Patrick, and Prof. Sydney Smith.

Mortality among Mental Patients

Mr. ERNEST BROWN on Feb. 18 furnished the following tables of deaths in mental and mental deficiency institutions and the percentage to total population of those institutions:

I. *Mental Institutions*

Year	No. of Deaths	Percentage
1938	9,136	6.57
1939	10,207	7.30
1940	11,623	8.38
1941	12,598	9.22

II. *Mental Deficiency Institutions*

Year	No. of Deaths	Percentage
1938	442	1.24
1939	499	1.33
1940	636	1.65
1941	734	1.87

The institutions included in Table I are county and borough mental hospitals, registered hospitals, licensed houses, hospitals and nursing homes approved under the Mental Treatment Act, 1930, naval and military hospitals, and the Criminal Lunatic Asylum, Broadmoor. Those included in Table II are the State institution, certified institutions, certified houses, and approved homes. Percentages are based on the daily average number of patients resident.

National Institute for Medical Research and M.R.C.

Sir ERNEST GRAHAM-LITTLE asked on Feb. 24 whether the Lord President of the Council was aware that the recently appointed director of the National Institute for Medical Research, who succeeded in that office a Nobel Prize winner in medicine, possessed no medical qualification and had no medical training. Sir Ernest asked the present composition of the Medical Research Council and whether there was adequate representation of clinical medicine on that body. Sir JOHN ANDERSON replied that the new director of the National Institute for Medical Research was a distinguished investigator in an important branch of medical science, who had already been head of a department in a medical school of the University of London. He was not medically qualified, but the clinical departments of the Medical Research Council were not comprised in the National Institute. The present members of the Medical Research Council were: Lord Balfour (chairman), Sir William Goodenough (treasurer), Sir Charles MacAndrew, Prof. T. R. Elliott, Sir Wilson Jameson, Prof. S. P. Bedson, Mr. E. Rock Carling, Prof. F. C. Bartlett, Prof. E. D. Adrian, Sir Henry Dale, and Prof. D. Keilin. The principal subjects represented by the 8 members appointed in respect of their scientific qualifications were clinical medicine, surgery, preventive medicine, pathology and bacteriology, pharmacology, physiology and neurology, biochemistry, and psychology. Sir John was satisfied that this provided a well-balanced representation of the different branches of medical science.

Rehabilitation in the Army

Introducing the Army Estimates on Feb. 25, Sir JAMES GRIGG said he did not mention the health of the troops because in that matter the Army's history for the past year had been a blank, to the immense credit of the Army medical and nursing services.

Sir THOMAS MOORE raised the question of the hospital treatment of the Home Guard officer; he was turned out of officers' convalescent hospitals. A document issued by the War Office on Oct. 13, 1942, said Home Guard officers must be treated as private soldiers and relegated to the nearest ordinary hospital. Mr. HENDERSON said it would not be consistent with the basis of the Home Guard if different treatment were given to Home Guard officers compared with other members.

Major NEVEN SPENCE stated that the chief worry of the serving soldier was the doctor's bill when there was sickness in his home. Sir James Grigg should arrange forthwith for free

medical treatment of all dependants. It would be tremendously popular with young married soldiers.

Mr. ARTHUR HENDERSON spoke on rehabilitation carried out both in hospitals and at military convalescent depots. The first stage of remedial treatment was given in the physiotherapy department of the hospital. It consisted of massage, exercises, and radiant heat and ultraviolet-ray treatment. When hospital treatment was no longer necessary the patient was sent to a military convalescent depot and physical fitness was restored by graduated exercises and training. There were 13 military convalescent depots in the United Kingdom with 11,078 beds for soldiers. For rehabilitation of cases of neurosis a unit of 200 hospital beds and 600 convalescent beds had been established outside Birmingham. Success had attended the establishment of two centres for dealing with men with remediable defects such as curved spine or flat feet, and with men who were physically under-developed when they joined the Army. At one centre about 80% were up-graded to A1. It had been decided to establish four other centres.

Beveridge Report

During the resumed debate on the Beveridge report on Feb. 25 Lord ADDISON said that 23 years ago, when he was Minister of Health, Lord Dawson, with other medical men, reported to him upon an agreed scheme for the establishment of clinics, centres for early diagnosis, minor aids in the treatment of eyes and ears, and other services. That showed how slowly the country moved. A little had been done in that respect thanks to the energy and work of the medical profession, but if ever a subject were ripe for action it was this. He hoped the Government would instruct the Minister of Health and his colleague in Scotland to make progress with this part of the scheme. Lord RUSHCLIFFE considered that if the Beveridge report was put into the hands of a Government draftsman as it was, it would be outside his power to draft a Bill carrying it into effect. A universal health service was indissolubly bound up with the kind of scheme proposed by Sir William Beveridge, and health insurance was the core of the whole scheme. Until Parliament had ascertained what it was going to do with health, and how the health service could be fitted into the insurance proposals, it could not proceed further. Difficult and far-reaching questions between nurses, doctors, hospitals, and so on must be settled before they could begin to consider how to frame the legislation.

Lord SNELL said the Beveridge report, after a searching debate, emerged with the general approval of Parliament, of the Government, and of the nation. Between 80 and 90% of the report had been approved by the Government.

Venereal Diseases: Publicity Campaign

Mr. DAVID ADAMS inquired on Feb. 25 whether the propaganda campaign for the prevention and elimination of venereal disease would include a national appeal to all parents and guardians of children to instruct them in an elementary knowledge of sex and the natural functions of the body. Mr. BROWN said that at present he proposed to leave such action to the initiative of parents, but the Central Council for Health Education arranged sex education talks to parents and young people at the request of local authorities, local education authorities, and youth organizations. The campaign also included pamphlets addressed to adolescents distributed through local authorities and in other ways.

The Services

The M.C. has been awarded to Capts. S. M. P. Conway, D. Macrae, J. J. McCall, and P. Unwin, R.A.M.C., in recognition of gallant and distinguished services in the Middle East.

CASUALTIES IN THE MEDICAL SERVICES

Lieut. ROBIN GERALD SPICER, R.A.M.C., who was killed on active service last month, was born on Sept. 12, 1917, the youngest son of the late Mr. G. B. Spicer, C.B., and of Mrs. Spicer of Ardingly, Sussex. He received his professional education at the London Hospital, qualifying M.R.C.S., L.R.C.P. in 1942. Before entering the R.A.M.C. in Oct. last he held appointments at Warley Woods Hospital, Brentwood, and Addenbrooke's Hospital, Cambridge. He was married on Jan. 23 at St. Giles Cathedral, Edinburgh, to Joan Elizabeth, the younger daughter of the late Dr. Percy Stewart and of Mrs. Stewart of Edinburgh.

Capt. THOMAS PICTON MYLES, R.A.M.C., who died in India in Nov., 1942, was educated at the University of Cambridge and at St. Mary's Hospital, qualifying M.R.C.S., L.R.C.P. in 1936. He also took the M.B., B.Chir. degrees in 1937 and the D.O.M.S. of the English Royal Colleges in 1939. After holding house appointments at Sheffield Royal Infirmary and St. James Hospital, Balham, he entered the R.A.M.C. as lieut. in Sept., 1937, and was promoted capt. a little over a year later. He joined the B.M.A. in 1937.

Prisoners of War.—Fl. Lieut. R. F. Braithwaite, R.A.F.V.R., Wing Cmdr. C. W. Coffey, R.A.F., Squad. Ldr. J. A. MacCarthy, G.M., R.A.F. Fl. Lieut. N. J. W. Thompson, R.A.F.V.R.

Missing.—Lieut. J. G. Warren, R.A.M.C.

Universities and Colleges

UNIVERSITY OF OXFORD

An election of two members of the Board of the Faculty of Medicine will be held on June 9. The members elected will come into office on the first day of Michaelmas Term, 1943, and will hold office, the senior for two years and the junior for one year, from that day.

The general medical electorate consists of all Oxford graduates in medicine who are members of Convocation. The Board of the Faculty of Medicine includes two members elected by the general medical electorate who must be members of that body and of whom one at least must be a person engaged in teaching one or more of the clinical subjects of the Faculty.

Nominations of duly qualified candidates for election will be received by the Secretary of Faculties at the University Registry up to 10 a.m. on May 19. Each nomination must be signed by six members of the general medical electorate, and no candidate will be eligible whose nomination has not been received by that date.

In a Congregation held on Feb. 27 the following medical degrees were conferred:

B.M., B.CH.—J. M. Garvie, R. I. K. Elliott, D. G. T. Hicks, J. C. Prestwich (in absence).

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Feb. 26 the following medical and surgical degrees were conferred:

M.D.—A. G. Cross, R. H. A. Swain (by proxy), F. H. King (in person).
M.B., B.CHIR.—R. B. Meyer, G. M. Barrett, S. C. H. Hood, D. E. C. Whittome, P. N. Cunliffe, G. C. L. Roberts (all by proxy).

W. M. Beattie has been examined and approved for the degree of M.Chir.

Medical News

Sir Henry Dale, P.R.S., will deliver a series of lectures on "Chemistry in Modern Medicinal Treatment" at the Royal Institution, 21, Albemarle Street, W., on Tuesdays, March 16, 23, and 30 and April 6, at 3 p.m.

Sir Alfred Egerton, F.R.S., will give a discourse on "Warmth and Comfort Indoors" at the Royal Institution, 21, Albemarle Street, W., on Friday, March 19, at 5 p.m.

The lecture by Prof. H. Dingle (Professor of Natural Philosophy at the Imperial College of Science) on "Space and Time in Modern Physics" (postponed from Jan. 22 owing to the sudden illness of the lecturer) will now be delivered at the British Institute of Philosophy on Friday, March 19, at 5 p.m. Cards of admission may be obtained free of charge from the Director of Studies at University Hall.

A joint meeting of the Therapy Section of the Faculty of Radiologists with the British Institute of Radiology and the Faraday Society will be held at 32, Welbeck Street, W., on Friday, March 19, at 2 p.m., when there will be a discussion on "The Physical and Chemical Action of Radiations in Relation to their Biological Effects," to be opened by Drs. D. E. Lea, C. B. Allsopp, and J. S. Mitchell.

A meeting of the Middlesex County Medical Society will be held at North Middlesex County Hospital, Silver Street, Edmonton, N., on Wednesday, March 17, at 3 p.m., when clinical cases will be demonstrated and discussed. Visitors, especially members of the American and Canadian Forces, will be welcome.

A second conference on *x*-ray analysis, arranged by the Institute of Physics, will be held at Cambridge on April 9 and 10. The provisional programme includes a lecture on future developments in *x*-ray crystallography by Prof. J. D. Bernal, and discussions on quantitative treatment of powder photographs and the fine structure of *x*-ray diffraction. There will also be a report on the progress made in the preparation of an index to *x*-ray diffraction photographs. Further particulars may be obtained from the Secretary of the Institute of Physics, the University, Reading.

The 63rd annual meeting of the Mental After Care Association will be held at Burlington House, Piccadilly, London, W.1, on Tuesday, March 23, at 2.45 p.m.

A sessional meeting of the Royal Sanitary Institute will be held at 90, Buckingham Palace Road, S.W., on Tuesday, March 23, at 2.30 p.m., when a paper on "Mosquito Problems in Static Water Tanks" will be read by Mr. P. G. Shute, Adviser on Mosquito Control to the Ministry of Health.

The Ministry of Health has decided to effect certain changes in the salaries of whole-time officers of the E.M.S. As from Feb. 1 last officers in the £350 grade are to be placed on a range of salary from £350 to £450, those at £550 a year on a range between £550 and £650, and those at £800 a year on a range of £800 to £900, the amount in lieu of emoluments remaining at its present figure of £100.

Mr. George H. Macnab, honorary assistant surgeon, Westminster Hospital, is to be Dean of the hospital in succession to Sir Adolphe Abrahams.

The Socialist Medical Association, at a meeting held on Feb. 28, considered its policy in view of the Government's decisions on the Beveridge report. The following resolutions were unanimously adopted: "(1) The S.M.A. reiterates its welcome to the Beveridge report as an effort to deal with two factors in the causation of ill-health: the existence of poverty and the absence of an organized health service. It views with regret, therefore, the failure of the Government to implement the report. It wishes to emphasize that from the health point of view the provisions of the report, based as they are on subsistence and not on optimum dietary standards, cannot be lowered. The acceptance of Assumption B is warmly welcomed. We urge that 'the restoration of the sick is a duty of the State and the citizen, prior to any other consideration,' as suggested in the report, should be accepted as the keynote of the service which the Minister of Health is discussing. The efficiency of that service in the care of health, and not a doctrinaire belief in the necessity of preserving the voluntary hospital principle or any other existing service, must be the basis of a comprehensive National Medical Service. (2) This meeting of the S.M.A. believes that there should be one standard of medical service for all beneficiaries in a comprehensive National Medical Service, and that doctors employed by this service should not be permitted to accept private fees."

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there was a further rise during the week in the notifications of measles, 907, but a drop in the other infectious diseases—scarlet fever 151, acute pneumonia 143, diphtheria 67, cerebrospinal fever 28, whooping-cough 15.

The largest variations from the totals of the previous week were: for scarlet fever a fall of 25 in London and a rise of 21 in Lancashire; for diphtheria a fall of 21 in Yorks West Riding and a rise of 14 in Lancashire; for whooping-cough a rise of 32 in Staffordshire and a fall of 29 in Yorks West Riding.

The fall in the notifications of acute pneumonia was the result of experience in the North. In the South, including London and the South-Eastern, South-Western, and South Midland counties, there was a slight rise from 323 to 345 cases. The largest decreases were those of Lancashire 55, Yorks West Riding 37, and Staffordshire 35.

The only feature of note in the returns for dysentery was an outbreak involving 13 persons in Lincolnshire, Caistor R.D.

The incidence of measles has mounted steadily during the past month, and the total of 18,215 cases reported during the week is the largest weekly total since notification of this disease began in the autumn of 1939. The biggest rises during the week were those of Durham 280, Sussex 210, Leicestershire 128, Surrey 127, Devonshire 115, Glamorganshire 138. In several counties decreases were recorded, the largest being Yorks North Riding 293, Middlesex 134, and Cheshire 106.

In *Scotland* the rise in the notifications of measles and of whooping-cough was due to the experience of Glasgow, with an increase of 44 for measles and 24 for whooping-cough.

In *Eire* the returns were dominated by a few areas: 29 of the 54 cases of whooping-cough and 16 of the 21 of measles were reported from the rural district of Enniscorthy, Co. Wexford. Half the notifications of diphtheria were from the cities of Dublin and Cork, and half the cases of scarlet fever from the city of Dublin and Balrothery R.D., Co. Dublin.

The Week Ending February 27

The notifications of infectious diseases in England and Wales during the week included the following: scarlet fever 1,934, whooping-cough 1,786, diphtheria 813, measles 20,082, acute pneumonia 1,373, cerebrospinal fever 103, dysentery 96, paratyphoid 6, typhoid 3. Influenza was the cause of 87 deaths in the great towns.

No. 7

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 20.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	96	9	27	5	3	187	11	34	—	9
Deaths		2	1				—	1		
Diphtheria	828	38	188	96	32	855	35	230	51	30
Deaths	25	2	5	7	1	32	3	8	3	1
Dysentery	89	7	38	—	—	137	12	49	—	—
Deaths		—	—	—	—		1	—	—	—
Encephalitis lethargica, acute	—	—	1	—	—	5	—	1	—	—
Deaths		—	—				—	—		
Erysipelas			62	6	2			51	11	2
Deaths		—	—				1	—		
Infective enteritis or diarrhoea under 2 years				14						
Deaths	45	7	10	11	4	30	4	6	9	2
Measles	18,215	1,182	363	21	52	1,996	151	148	95	12
Deaths	24	—	—	—	1	1	—	3	1	—
Ophthalmia neonatorum	87	2	17	1	3	85	7	18	4	—
Deaths										
Paratyphoid fever	7	—	1	1	—	6	1	3	—	
Deaths	—	—	—	—	—	1	—	—	—	
Pneumonia, influenzal*	1,399	73	30	5	8	996	41	17	3	3
Deaths (from influenza)	102	13	10	—	6	62	1	5	1	1
Pneumonia, primary			415	24				278	21	
Deaths		—		11	14		57		14	9
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	5	—	—	5	—	6	1	1	3	—
Deaths		—	—				—	—		
Puerperal fever	—	3	17	2	—	1	1	19	1	—
Deaths		—					—			
Puerperal pyrexia	146	9	21		—	181	8	22		2
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,922	134	300	41	47	1,159	46	193	40	19
Deaths	1	—	—	—	1	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	6	2	3	7	—	3	—	7	8	1
Deaths	—	—	—	—	—	2	—			
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,581	118	143	54	9	1,211	133	67	16	23
Deaths	16	4	1	3	—	8	2	—	—	—
Deaths (0–1 year)	434	47	77	59	22	390	44	80	43	19
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,200	752	742	265	165	5,522	773	804	235	129
Annual death rate (per 1,000 persons living)			16·7	17·4	‡			18·1	15·7	‡
Live births	6,386	780	910	342	289	5,643	600	798	311	223
Annual rate per 1,000 persons living			18·6	22·5	‡			16·5	20·8	‡
Stillbirths	231	19	40			239	32	46		
Rate per 1,000 total births (including stillborn)			42					55		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.
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ANY QUESTIONS?

Cramp in Arteriosclerosis

Q.—*An elderly male patient suffers severely almost every night with cramp in the leg muscles. For a time relief was obtained from the suggestion given in an earlier number of the* JOURNAL*—to pinch firmly the nearest tendon. Is anything likely to help this sudden and distressing symptom? The man is an arteriosclerotic with nephritis and asthma.*

A.—The complicated clinical picture makes a simple answer difficult. Bathing the legs in hot saline (1 teaspoon to the pint) for 15 minutes before retiring may help. Nicotinic acid, 50 mg. daily, is also worth trying.

Treatment of Dysmenorrhoea

Q.—*Is there any really effective cure for dysmenorrhoea? I have several fairly severe cases. In the past some of my patients have been treated by dilatation of the cervix—usually with disappointing results. Remedial exercises have relieved others; but there seems to be a type of case which is not relieved by any treatment except opiates, which are undesirable.*

A.—Dysmenorrhoea is a symptom and not a disease. For this reason no one method can be effective in all cases and only a minority will respond to dilatation of the cervix. When pain is hypogastric in site, begins with the onset of the menstrual flow, and is associated with a moderate loss and either acute anteflexion or retroflexion of the uterus, the response to dilatation is likely to be satisfactory. If the dysmenorrhoea occurs shortly after puberty, is hypogastric in site, and is associated with a poorly developed uterus and scanty flow, intermittent oestrogen therapy is the most hopeful line of treatment. Stilboestrol can be used in doses of 1 mg. for 14 days, beginning as soon as the period ends. It should be continued after subsequent periods for 3 months or longer. When there is no evidence of genital hypofunction good results may be obtained by the injection of adrenaline in oil with the onset of pain, or by the combination of dilatation of the cervix with injection of the paracervical plexus with 80% alcohol. This should not be done by the occasional operator. Acquired dysmenorrhoea beginning in later life is usually an indication of pelvic inflammation, congestion, or endometriosis. The pain is likely to be in the iliac fossae or back, indicating adnexal disease. The subject is not easy, and good results can be obtained only if cases are carefully selected and appropriately treated. In all, attention to personal hygiene is of paramount importance.

Morphine and Shock

Q.—*Does the injection of morphine increase or lessen shock after bomb injuries?*

A.—The main action of morphine is to decrease the perception of pain; the next most important effect is its depressant action on the respiratory centre. Its action in "shock" depends on the dosage and route of administration, as well as on what is meant by this abused and almost meaningless term.

If pain is severe and just enough morphine be given to relieve it (gr. 1/4 or 1/2 subcutaneously), this will not adversely affect any peripheral circulatory failure that may be present due to decreased blood volume from haemorrhage or plasma loss—that is, in relation to the patient as a whole it will be beneficial, but will not take the place of the transfusion of blood or plasma which is essential to replace that lost. If a much larger dose be given, and especially if given in the later stages of peripheral circulatory failure, when there is anoxia, it may be harmful because of its depressant effect on the respiratory centre. The indiscriminate use of morphine for "shock," which in most cases so diagnosed during a blitz is largely fright, is to be deplored; *it should be used to relieve pain.*

The route of administration is important. With a severe degree of peripheral vasoconstriction uptake from subcutaneous tissue is slow, and it is better given intramuscularly, or by placing two 1/4-gr. tablets beneath the tongue, or by giving gr. 1/6 diluted to 1 or 2 c.cm. with saline intravenously.

Too Much Iron?

Q.—*Is it possible to give too much iron, especially to children? And if so, what are the symptoms?*

A.—The only ill effect of excessive dosage of iron which appears to be at all common is the formation of intestinal concretions with consequent obstruction of the bowel. In children there is the special risk of precipitation of phosphorus as insoluble ferric phosphate in the intestine and consequent liability to rickets. Iron encephalopathy with convulsions has been described, but it is generally believed to be extremely rare. Nevertheless, it seems unwise to administer unnecessarily large doses of iron, and it is a growing practice to give ferrous salts for routine therapy in pharmacopoeial dosage only, and to devote special individual attention to cases in which this dosage seems inadequate.

INCOME TAX

Cessation of Appointment

C.'s appointment and salary ceased at the end of April, 1942. Tax had been deducted from the payments made to him, but the collector is now claiming a sum of £100 as not having been included in the deductions.

*** The tax deducted in the year ended Oct. 31, 1941, was that due for the financial year ended April 5, 1941, and the tax deducted from Nov. 1, 1941, to the end of April, 1942, say £*x*, was in respect of the tax for the year ended April 5, 1942. C. is now liable to account for the excess of the full tax for the latter year over £*x*, and any liability in respect of the amount earned between April 5, 1942, and the date of cessation.

Depreciation of Car

"A. B. C." used two cars up to May 1, 1942, on which date one of the cars was left unlicensed. Can he claim the depreciation allowance on that car? Also, if he were to sell the car for £450, which would exceed the written-down value, and buy another car for £900, would he be entitled to the allowance on £900?

*** The allowance provided is for depreciation by reason of "wear and tear," and no allowance is therefore due for the period when a car is unlicensed and out of use. The answer to the further question is that in such circumstances an allowance would be due based on the cost price of £900.

LETTERS, NOTES, ETC.

Liq. Ferri Perchlor. for Sore Throat

Dr. RALPH JONES (London, W.11) writes: I used frequently until the introduction of the sulphonamides liq. ferri perchlor. (with or without pot. chlor.) for sore throats. Lately I had three patients—one adult and two children—who could not take any form of sulphonamide without severe nausea and even vomiting. I gave these patients liq. ferri perchlor. (alone), and they cleared up very quickly. I did not take a swab of the adult patient's throat, but I did of those of the children, and in each case haemolytic streptococci were found. I should like to mention this for the benefit of those who may have forgotten or never tried this very old remedy.

Methaemoglobin in Normal Human Blood

Emeritus Prof. C. R. MARSHALL (Burley-in-Wharfedale) writes: In the report on haemoglobinometry by the subcommittee of the Committee on Traumatic Shock (Feb. 20, p. 209) the discovery of methaemoglobin in normal human blood is ascribed to Ammunsen in 1941. The first announcement of the presence of methaemoglobin in normal human blood was made by Wilfrid Marshall in the *Journal* of Jan. 16, 1932 (p. 98). He suggested that a balanced state exists, a minute concentration of methaemoglobin being in equilibrium with the oxyhaemoglobin of normal blood.

Medicine and Pharmacy in Other Countries

Dr. D. OCKMAN (Kearsley) writes: Dr. K. E. Barlow's letter (Feb. 6, p. 178) describing the pre-war chemist's shop in Denmark will be a revelation to those practitioners who, like myself, have not been able to observe at first hand the medical arrangements in other countries. Certainly it seems that what some people would regard as an unattainable medical Utopia for this country appears to be the ordinary normal state of affairs for Denmark. Perhaps our excessive insularity will be democratized by a period of Allied occupation of Europe, with intimate co-operation in the organization of medical relief, etc. In the meantime could we not have some regular information, like Dr. Barlow's, on the minutiae of medical arrangements in other countries as an aid to our own plannings?